

Indiana Department of Transportation

County Clinton

Route US 421

Des. No. 1593276

FHWA-Indiana Environmental Document
CATEGORICAL EXCLUSION / ENVIRONMENTAL ASSESSMENT FORM
 GENERAL PROJECT INFORMATION

Road No./County:

US 421, Clinton County

Designation Number:

1593276

Project Description/Termini:

Historic Bridge Project on US 421 over South Fork Wildcat Creek

After completing this form, I conclude that this project qualifies for the following type of Categorical Exclusion (FHWA must review/approve if Level 4 CE):

	Categorical Exclusion, Level 2 – The proposed action meets the criteria for Categorical Exclusion Manual Level 2 - table 1, CE Level Thresholds. Required Signatories: ESM (Environmental Scoping Manager)
	Categorical Exclusion, Level 3 – The proposed action meets the criteria for Categorical Exclusion Manual Level 3 - table 1, CE Level Thresholds. Required Signatories: ESM, ES (Environmental Services Division)
X	Categorical Exclusion, Level 4 – The proposed action meets the criteria for Categorical Exclusion Manual Level 4 - table 1, CE Level Thresholds. Required Signatories: ESM, ES, FHWA
	Environmental Assessment (EA) – EAs require a separate FONSI. Additional research and documentation is necessary to determine the effects on the environment. Required Signatories: ES, FHWA

Note: For documents prepared by or for Environmental Services Division, it is not necessary for the ESM of the district in which the project is located to release for public involvement or sign for approval.

Approval

ESM Signature _____

Date _____

ES Signature _____

Date _____

 FHWA Signature

 Date

Release for Public Involvement

N/A
 ESM Initials

 Date

REB
 ES Initials

3-12-2020
 Date

Certification of Public Involvement

 Office of Public Involvement

 Date

Note: Do not approve until after Section 106 public involvement and all other environmental requirements have been satisfied.

INDOT ES/District Env.

Reviewer Signature: _____

Date: _____

Name and Organization of CE/EA

Preparer: _____

Harlan M. Ford/GAI Consultants Inc.

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Part I - PUBLIC INVOLVEMENT

Every Federal action requires some level of public involvement, providing for early and continuous opportunities throughout the project development process. **The level of public involvement should be commensurate with the proposed action.**

Does the project have a historic bridge processed under the Historic Bridges PA*?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>

If No, then:
Opportunity for a Public Hearing Required?

<input type="checkbox"/>	<input type="checkbox"/>
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**A public hearing is required for all historic bridges processed under the Historic Bridges Programmatic Agreement between INDOT, FHWA, SHPO, and the ACHP.*

Discuss what public involvement activities (legal notices, letters to affected property owners and residents (i.e. notice of entry), meetings, special purpose meetings, newspaper articles, etc.) have occurred for this project.

Remarks:

Notice of entry letters were mailed to potentially affected property owners near the project area on April 2, 2018 notifying them about the project and that individuals responsible for land surveying and field activities may be seen in the area. A sample copy of the Notice of Entry letter is included in Appendix C, page C4. To meet the public involvement requirements of Section 106, a legal notice of FHWA's finding of "No Adverse Effect" was published in The Times on November 14, 2019 offering the public an opportunity to submit comment pursuant to 36 CFR 800.2(d), 800.3(e), and 800.6(a)(4). The public comment period closed 30 days later on December 15, 2019. The text of the public notice and the affidavit of publication appear in Appendix D, page D53. Pursuant to the Historic Bridge Programmatic Agreement (PA), a public hearing is required. A legal notice will appear in a local publication contingent upon the release of this document for public involvement. This document will be revised after the public involvement requirements are fulfilled.

Public Controversy on Environmental Grounds

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Will the project involve substantial controversy concerning community and/or natural resource impacts?

Remarks:

At this time, there is no substantial public controversy concerning impacts to the community or to natural resources.

Part II - General Project Identification, Description, and Design Information

Sponsor of the Project: INDOT INDOT District: Crawfordsville
Local Name of the Facility: US 421

Funding Source (mark all that apply): Federal State Local Other*

*If other is selected, please identify the funding source: _____

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PURPOSE AND NEED:

Describe the transportation problem that the project will address. The solution to the traffic problem should NOT be discussed in this section. (Refer to the CE Manual, Section IV.B.2. Purpose and Need)

The need for this project is due to the deterioration of the existing structure (421)39-12-01792B, as documented in the February 13, 2017 Bridge Inspection Report (Appendix H, pages H2 to H54). At that time, the structure was noted to have an overall sufficiency rating, the numeric value which is indicative of the bridge sufficiency to remain in service, of 46.7 out of 100. This sufficiency rating of 46.7 indicates that the bridge is in overall "fair" condition. The three main elements of the bridge (deck, superstructure, and substructure) were evaluated on a scale ranging from "0" to "9" ("0" being a failed structure and "9" being a structure in excellent condition). The bridge deck received a rating of "6" indicating that it is in satisfactory condition with minor deterioration such as spalling, transverse, longitudinal and diagonal cracking with efflorescence on the underside. Both the superstructure and the substructure received a rating of "5" which indicates "fair" condition. The superstructure showed signs of minor section loss. Span A, Beams 1 and 5 near Pier 2, and Span C, Beams 1 and 5 near Pier 3, are both spalled with exposed rebar and have longitudinal cracking with efflorescence. Span C, Beam 5 also has a large spall with exposed rebar with section loss mid-span. In addition, the truss in Span B has widespread light rusting with severe rusting and section loss at the four corner connections. The substructure exhibited minor section loss, with both interior piers having cracking and spalling with exposed rebar and minor section loss.

The purpose of this project is to correct the advanced deterioration of the structure as noted in the Bridge Inspection Report. By correcting these deficiencies, the life of the structure carrying US 421 over South Fork Wildcat Creek will be extended by approximately 25 years and will result in restoring the bridge to "good" overall condition. This will also ensure safe vehicular crossing over South Fork Wildcat Creek.

PROJECT DESCRIPTION (PREFERRED ALTERNATIVE):

County: Clinton

Municipality: Frankfort

Limits of Proposed Work: Approximately 240 ft. to the north and 240 ft. to the south from the center of the structure

Total Work Length: 0.09 Mile(s)

Total Work Area: 0.56 Acre(s)

Is an Interchange Modification Study / Interchange Justification Study (IMS/IJS) required?

If yes, when did the FHWA grant a conditional approval for this project?

Yes ¹	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Date: <input style="width: 80%;" type="text"/>	

¹If an IMS or IJS is required; a copy of the approved CE/EA document must be submitted to the FHWA with a request for final approval of the IMS/IJS.

Location

This project is located on US 421, approximately 2.24 miles south of SR 38 in Union Township, Clinton County, Indiana. Specifically, this project is located in Section 29, Township 21 North, Range 1 West as shown on the Frankfort USGS 7.5 Minute Topographic map (Appendix B, page B2).

Existing Conditions

US 421 is functionally classified as a minor arterial United States highway. The existing roadway is a two-lane rural roadway that runs north to south through the project area. This section of US 421 includes a 29-foot (ft.) roadway width, accompanied by 2 ft. shoulders and 6-inch (in.) curbs on both sides of the roadway. The roadway surface is comprised of bituminous pavement and the posted speed limit is 55 miles per hour (mph).

The existing bridge Structure No. (421)39-12-01792B) is a 3 span, 194 ft. long, steel truss-thru, concrete beam bridge that was built in 1941 and reconstructed in 1985. The existing bridge carries US 421 over South Fork Wildcat Creek.

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There are a few utilities that are located within the project area. These utilities are discussed in the below applicable sections of this document.

Surrounding land use is devoted primarily to agriculture. However, within the immediate project area, there are large forested tracts the line the banks of South Fork Wildcat Creek that would be considered riparian habitat.

According to the *Indiana Historic Bridge Inventory* (HBI, December 2010), Bridge No. (421)39-12-01792B is identified as a Select bridge and is eligible for listing on the National Register of Historic Places (NRHP) for its engineering significance, as well as being an uncommon highway bridge type in Indiana. According to the INDOT Bridge Inspection Report dated February 13, 2017, the existing structure is showing signs of deterioration. This inspection noted the following:

- **Bridge Deck:** The bridge deck documented transverse and diagonal cracking and white efflorescence in the underside of the bridge deck, along with rust staining and full depth patching and spalling.
- **Superstructure:** The superstructure had diagonal cracking and white efflorescence in the underside of the bridge deck, along with rust staining and full depth patching and spalling. The superstructure exhibited spalling, exposed rebar and cracking with efflorescence in beams 1 and 5 in span A. Beams 1 and 5 in Span C also show signs of spalling and exposed rebar with section loss mid span. Span B has widespread rusting and section loss in the truss.
- **Substructure/Foundation:** The substructure showed signs of patch work of the interior piers, cracking with efflorescence, and spalling with exposed rebar and minor section loss.
- **Channel/Channel Protection:** The spill slopes appeared stable but had little scour protection.

A new INDOT Bridge Inspection Report was completed on February 6, 2019, after submittal of the Historic Bridge Alternative Analysis (HBAA), and no new deficiencies were identified.

Preferred Alternative

The preferred alternative seeks to preserve as much of the existing bridge as feasible and detail the structural repairs necessary to extend the useful service life of the bridge components preserved and incorporated into the rehabilitated structure. This alternative consists of rehabilitating the existing bridge for continued use as a two-way structure as close to the Secretary of the Interior's (SOI) Standards for Rehabilitation, as practicable. The SOI Standards for Rehabilitation is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values." The intent of the Standards is to assist the long-term preservation of a property's significance through the preservation of historic materials and features. This project is covered under the requirements of the Historic Bridge Programmatic Agreement (HBPA) and the preferred alternative follows the Historic Bridge Alternative Analysis (HBAA). The scope of the required work that would be necessary to rehabilitate the structure for continued two-way vehicular use would include:

- Replace reinforced concrete pier pedestals for Spans A and C.
- Replacing end abutment caps.
- Replace the end spans A and C, with new prestressed concrete box beam superstructures, a new reinforced concrete deck and new type FC concrete railing.
- Abutments 1 & 4 would become semi-integral. New joints would be installed at Pier 2 and Pier 3 where superstructure type changes
- Replacing the existing reinforced concrete deck on the steel pony truss main span. In order to meet current level one criteria, the new deck will be constructed with a 28'-0" clear-roadway width to accommodate two 12'-0" lanes with 2'-0" shoulders on each side of the road. The new deck will also be constructed to a 2% cross slope.
- Installing new bridge deck drains
- Repairing the existing steel pony truss by:
 - Replacing steel elements in-kind
 - Replacing deteriorated rivets with round-headed bolts
 - Repairing deteriorated members by attaching additional steel plates to restore member's original cross-sectional area
- Clean and paint the existing steel pony truss and attached existing metal bridge railing.
- Construct new reinforced concrete bridge approaches with type TFC concrete bridge railing transitions.
- Replace existing guardrail at all four bridge corners.
- Wedge and level and/or replacing existing asphalt pavement as necessary to tie back into existing.
- Construct riprap turnouts at the ends of the concrete bridge railing transitions

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- Adding channel scour protection per the approved hydraulics scour report.
- Surface seal the deck, bridge rail, copings, exterior concrete beam faces, approach slabs, and bridge rail transitions.

Please refer to Appendix B, Pages B11 to B13 for plan sheets that illustrates the above stated work.

These repairs would result in restoring the bridge to a "good" overall rating and will extend the service life of the structure by approximately 25 years.

The MOT for this project will utilize a road closure with a detour route. Please refer to the below MOT section of this document for full details.

Based on the above information, the preferred alternative will function as a standalone project that meets the Purpose and Need of the project by preserving as much of the existing bridge as feasible, while correcting all of its deficiencies; therefore, extending its lifespan in a prudent and feasible manner.

In the remarks box below, describe existing conditions, provide in detail the scope of work for the project, including the preferred alternative. Include a discussion of logical termini. Discuss any major issues for the project and how the project will improve safety or roadway deficiencies if these are issues.

OTHER ALTERNATIVES CONSIDERED:

Describe all discarded alternatives, including the Do-Nothing Alternative and an explanation of why each discarded alternative was not selected.

The "Do Nothing" Alternative

The "Do Nothing" alternative was considered for the proposed project as part of the Historic Bridge Alternative Analysis (HBAA). The full HBAA can be found in INSCOPE at: <https://erms.indot.in.gov/Section106Documents/>. Search by Des No. This alternative proposes retaining the existing structure with no expenditure of Federal funds for improvements. With no improvements to the bridge, deterioration of the superstructure and substructure would continue to a point where the bridge would have to be closed. A closure of the bridge would result in traffic being detoured along SR-26 and SR-75, which would add approximately 2.84 miles of travel for motorists. Without repairs the estimated remaining life of the structure is less than five years. Additionally, the "Do Nothing" alternative would not satisfy the overall purpose of the project, which is to correct the deficiencies of the structure and continue to provide a safe vehicular crossing over South Fork Wildcat Creek. Although the "Do Nothing" alternative is feasible, it was not determined to be prudent, as it does not meet the purpose of the project.

The next alternative considered for this project was the rehabilitation alternative. The rehabilitation alternative was determined to be the preferred alternative; therefore, no other alternatives were evaluated.

The Do Nothing Alternative is not feasible, prudent or practicable because (Mark all that apply):

- It would not correct existing capacity deficiencies;
- It would not correct existing safety hazards;
- It would not correct the existing roadway geometric deficiencies;
- It would not correct existing deteriorated conditions and maintenance problems; or
- It would result in serious impacts to the motoring public and general welfare of the economy.
- Other (Describe)

X

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ROADWAY CHARACTER:

Functional Classification:	Minor Arterial				
Current ADT:	4,431	VPD (2019)	Design Year ADT:	6,650	VPD (2039)
Design Hour Volume (DHV):	N/A	Truck Percentage (%)	12		
Designed Speed (mph):	55	Legal Speed (mph):	55		

Existing

Proposed

Number of Lanes:	2				2	
Type of Lanes:	12 ft. travel lanes				12 ft. travel lanes	
Pavement Width:	34	ft.			34	ft.
Shoulder Width:	5	ft.			5	ft.
Median Width:	N/A	ft.			N/A	ft.
Sidewalk Width:	N/A	ft.			N/A	ft.

Setting:	<input type="checkbox"/>	Urban	<input type="checkbox"/>	Suburban	<input checked="" type="checkbox"/>	Rural
Topography:	<input checked="" type="checkbox"/>	Level	<input type="checkbox"/>	Rolling	<input type="checkbox"/>	Hilly

If the proposed action has multiple roadways, this section should be filled out for each roadway.

DESIGN CRITERIA FOR BRIDGES:

Structure/NBI Number(s):	<u>(421)39-12-01792B / NBI #: 032200</u>	Sufficiency Rating:	<u>46.7, INDOT BIAS Report</u> (Rating, Source of Information)
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Existing

Proposed

Bridge Type:	Steel Truss				Steel Truss	
Number of Spans:	3-span				3-span	
Weight Restrictions:	N/A	ton			N/A	ton
Height Restrictions:	N/A	ft.			N/A	ft.
Curb to Curb Width:	27.7	ft.			27.7	ft.
Outside to Outside Width:	29	ft.			29	ft.
Shoulder Width:	2	ft.			2	ft.
Length of Channel Work:					31	ft.

Describe bridges and structures; provide specific location information for small structures.

Remarks: Bridge No. (421)39-12-01792B (NBI: 032200) is a 3-span, steel truss structure that was originally built in 1941 and reconstructed in 1985. The bridge has an out-to-out width of 29 ft. and a structure length of 194 ft. This bridge will be rehabilitated for continued use as a two-way structure as close to the Secretary of the Interior's Standards for Rehabilitation, as practicable. Please refer to the above *Project Description* section of this CE document for the full scope of work. The clear roadway width will remain 27.7 ft. wide consisting of two 12 ft. travel lanes and two 2 ft. shoulders with 0.5 ft. curbs. No other structures are included as part of this project.

Will the structure be rehabilitated or replaced as part of the project?

Yes	No	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If the proposed action has multiple bridges or small structures, this section should be filled out for each structure.

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MAINTENANCE OF TRAFFIC (MOT) DURING CONSTRUCTION:

	Yes	No
Is a temporary bridge proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is a temporary roadway proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project involve the use of a detour or require a ramp closure? (describe in remarks)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for access by local traffic and so posted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for through-traffic dependent businesses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made to accommodate any local special events or festivals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the proposed MOT substantially change the environmental consequences of the action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there substantial controversy associated with the proposed method for MOT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks:
 The Maintenance of Traffic (MOT) for this project will utilize a road closure with a detour route. The MOT plans intend to detour traffic along State Road (SR) 26 and SR 75. This detour route would add approximately 2.84 miles for motorists over the current straight-line travel distance of 8.14 miles. Please refer to plan sheet illustrating the MOT in Appendix B, page B10.

 The closures/lane restrictions will pose a temporary inconvenience to traveling motorists (including school buses and emergency services); however, no significant delays are anticipated, and all inconveniences will cease upon project completion. Delays may occur during construction but will cease with project completion.

ESTIMATED PROJECT COST AND SCHEDULE:

***Please note that this information came from the 2018-2021 STIP. This project is currently being incorporated into the new 2020-2024 STIP and these funding amounts will be revised after it is incorporated into the 2020-2024 STIP. No ROW is anticipated to be needed.**

Engineering: \$ *46,500 (2018) Right-of-Way: \$ *35,000 (2018) Construction: \$ *824,000 (2020)

Anticipated Start Date of Construction: Fall of 2020

Date project incorporated into STIP *July 3, 2017

Is the project in an MPO Area? Yes No

If yes,

Name of MPO N/A

Location of Project in TIP N/A

Date of incorporation by reference into the STIP N/A

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RIGHT OF WAY:

Land Use Impacts	Amount (acres)	
	Permanent	Temporary
Residential	0	0
Commercial	0	0
Agricultural	0	0
Forest	0	0
Wetlands	0	0
Other:	0	0
Other:	0	0
TOTAL	0	0

Describe both Permanent and Temporary right-of-way and describe their current use. Typical and Maximum right-of-way widths (existing and proposed) should also be discussed. Any advance acquisition or reacquisition, either known or suspected, and there impacts on the environmental analysis should be discussed.

Remarks: Existing right-of-way (ROW) extends approximately 50-90 ft. from the roadway centerline within the project area. The existing ROW is being utilized for the maintenance of the roadway, shoulders, and drainage. This project will occur within existing right-of-way (ROW). No permanent or temporary ROW will be required for this project.

If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately.

Part III – Identification and Evaluation of Impacts of the Proposed Action

SECTION A – ECOLOGICAL RESOURCES

	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
Streams, Rivers, Watercourses & Jurisdictional Ditches	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Federal Wild and Scenic Rivers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State Natural, Scenic or Recreational Rivers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nationwide Rivers Inventory (NRI) listed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outstanding Rivers List for Indiana	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Navigable Waterways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remarks: Based on a desktop review, a site visit on April 13, 2018 by GAI, the aerial map of the (Appendix B, Page B3), and the water resources map in the Red Flag Investigation (RFI) report (Appendix E, page E9), there are seven stream segments located within the 0.5 mile search radius. There is one stream segment, South Fork Wildcat Creek, present within the project area.

A *Waters of the U.S. Determination / Wetland Delineation Report* was approved by INDOT Ecology and Waterway Permitting Office approved on November 20, 2018. Please refer to Appendix F, pages F1 to F42 for the *Waters of the U.S. Determination / Wetland Delineation Report*. It was determined that South Fork Wildcat Creek is a likely jurisdictional waterway. No other waterways were identified within the project area. The U.S. Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

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The Federal Wild and Scenic Rivers listing, State Natural, Scenic, and Recreational Rivers listing, the Nationwide Rivers Inventory, Outstanding Rivers List for Indiana, and the U.S. Army Corps of Engineers list of Navigable Waterways were reviewed by GAI to determine the possible presence of one of these waterways within the project area. South Fork Wildcat Creek is listed on the Indiana Register Information Bulletin #4 (16 IR 1677) as an Outstanding River for special protection due to being a high quality waterway (HQW). South Fork Wildcat Creek is not a Salmonid Waters or USACE Section 10 Water listed as navigable.

South Fork Wildcat Creek is a perennial, USGS Blue Line Stream, and Relatively Permanent Waterbody (RPW) that flows north to south through the project area. South Fork Wildcat Creek has a substrate comprised primary of sand, gravel, and cobble with an upstream drainage area of 75.96 square miles. South Fork Wildcat Creek exhibited a defined bed, bank, and ordinary high water mark that measured approximately 54 ft. wide and 2.5 ft. deep. Impacts to South Fork Wildcat Creek will occur during the rehabilitation of this bridge. Scour protection will be placed above the OHWM of South Fork Wildcat Creek (Appendix B, pages B11 to B13). The scour protection will consist of Class 1 riprap that will be placed around Pier No.3 and will not result in any impacts to S. Fork Wildcat Creek. However, two temporary cofferdams will be required for the placement of jacking pads and to dewater the working area in order to rehabilitate the structure. Temporary impacts for the construction of the temporary cofferdams and placement of jacking pads will equal 0.005 acre. No permanent impacts will occur to S. Fork Wildcat Creek as a result of this project. Approximately 57 linear feet of impacts will occur to South Fork Wildcat Creek for the constructions of temporary cofferdams and placement of jacking pads. Stream mitigation will not be required for this project. Impacts to South Fork Wildcat Creek will be permitted for accordingly. Please refer to the *Permits* section of this documents for a description of permits required. In addition, debris and paint will be contained through the use of full containment measures which include constructing impenetrable walls with ridged or flexible framing, fully sealed joints, partially sealed entryways, and forced air flow with exhaust air filtration. These measures will capture and prevent paint, rust, paint removing agents, or other materials, from entering S. Fork Wildcat Creek.

Early coordination letters were sent to the Indiana Department of Natural Resources, Division of Fish and Wildlife (IDNR-DFW), the U.S. Fish and Wildlife Service (USFWS), Indiana Department of Environmental Management, and the U.S. Army Corp of Engineers (USACE) on June 15, 2018 (Appendix C, pages C1 to C2). The IDNR responded on July 13, 2018 (Appendix C, pages C18 to C20) with recommendations to help avoid and minimize impacts to South Fork Wildcat Creek. The recommendations applicable to water resources generally include scour protection and bank stabilization techniques. All applicable IDNR recommendations are included in the *Environmental Commitments* section of this CE document.

The USFWS responded on June 18, 2018 (Appendix C, pages C21 to C23) stating, "based on a review of the information you provided, USFWS has no objections to the project as currently proposed". The USFWS went on to provide a list of standard recommendations. All applicable USFWS recommendations are included in the *Environmental Commitments* section of this CE document. This project meets the conditions of the USFWS Interim Policy for the Review of Highway Transportation Projects in Indiana dated May 29, 2013.

The USACE did not respond to the early coordination letter.

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Other Surface Waters

Reservoirs
Lakes
Farm Ponds
Detention Basins
Storm Water Management Facilities
Other: _____

	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
Reservoirs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Farm Ponds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detention Basins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm Water Management Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remarks: Based on a desktop review, a site visit on April 13, 2018 by GAI, the aerial map of the project area (Appendix B, page B3), and the water resources map in the RFI report (Appendix E, page E9), there are two lakes located within the 0.5 mile search radius. One lake is located northwest, and one lake is located southeast of the project area, with the nearest lake being approximately 0.27 mile from the project area. No other surface waters are present within the project area; therefore, no impacts are expected.

Wetlands

	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Total wetland area: 0.175 acre(s) Total wetland area impacted: 0.028 acre(s)

(If a determination has not been made for non-isolated/isolated wetlands, fill in the total wetland area impacted above.)

Wetland No.	Classification	Total Size (Acres)	Impacted Acres	Comments
Wetland A	PFO	0.085+	0.004	Waters of the U.S.: Excellent Quality
Wetland B	PFO/PSS	0.069	0.019	Waters of the U.S.: Average Quality
Wetland C	PFO	0.021	0.005	Waters of the U.S.: Average Quality

Wetlands (Mark all that apply)

Wetland Determination
Wetland Delineation
USACE Isolated Waters Determination
Mitigation Plan

Documentation

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

ES Approval Dates

November 20, 2018
<input type="text"/>
<input type="text"/>
<input type="text"/>

Improvements that will not result in any wetland impacts are not practicable because such avoidance would result in (Mark all that apply and explain):

- Substantial adverse impacts to adjacent homes, business or other improved properties;
- Substantially increased project costs;
- Unique engineering, traffic, maintenance, or safety problems;
- Substantial adverse social, economic, or environmental impacts, or
- The project not meeting the identified needs.

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

Measures to avoid, minimize, and mitigate wetland impacts need to be discussed in the remarks box.

Remarks: Based on a review of the National Wetlands Inventory (NWI) online mapper (<https://www.fws.gov/wetlands/data/Mapper.html>), a site visit on April 13, 2018 by GAI, the USGS topographic

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map (Appendix B, Page B2), and the RFI report (Appendix E, pages E1 to E11) there are 17 wetlands located within the 0.5 mile search radius. There are three wetlands present within or adjacent to the project area.

A *Waters of the U.S. Determination / Wetland Delineation Report* was approved by INDOT Ecology and Waterway Permitting Office approved on November 20, 2018. Please refer to Appendix F, page F1 to F42 for the *Waters of the U.S. Determination / Wetland Delineation Report*. It was determined that three likely jurisdictional wetlands exist within the project area. The U.S. Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

Wetland A

Is a 0.85+ acre palustrine forested (PFO) wetland that is located on the northeast bank of South Fork Wildcat Creek at the foot-slope of US-421. Wetland A is hydrologically connected to South Fork Wildcat Creek and would be classified as excellent quality due to its forested classification and more importantly its function as serving as a buffer between surrounding agricultural fields which improves water quality. Wetland A also supports a diverse variety on native species with a very low presence of invasive species. Temporary impacts to this wetland will be necessary for the placement of erosion control measures, which includes a silt fence and filter sock. Temporary impacts equal 0.004 acre; however, no permanent impacts will occur.

Wetland B

Is a 0.69 acre PFO/palustrine scrub shrub (PSS) wetland that is located in the northwest quadrant of the project area along a roadside drainage ditch that drains into South Fork Wildcat Creek. Wetland B primarily serves as a buffer between roadway runoff and South Fork Wildcat Creek. Although this wetland serves an important function to improve water quality, the presence of invasive species detracts from the overall quality. Therefore, Wetland B would be considered an average quality wetland. Permanent impacts in the amount of 0.005 acre to Wetland B will occur for the placement of the revetment riprap as a scour countermeasure. Temporary impacts in the amount of 0.014 acre will occur for the construction of the access drive and for installation of silt fence and filter sock as erosion control measures. Cumulative impacts to this wetland equal 0.19 acre.

Wetland C

Is a 0.021 acre PFO wetland that is located on the southeast bank of South Fork Wildcat Creek. Wetland C primarily serves as a buffer between agricultural field runoff and South Fork Wildcat Creek. Although this wetland serves an important function to improve water quality, the presence of invasive species detracts from the overall quality. Therefore, Wetland C would be considered an average quality wetland. Temporary impacts to this wetland will be necessary for the placement of erosion control measures, which includes a silt fence and filter sock. Temporary impacts equal 0.005 acre; however, no permanent impacts will occur.

Cumulatively, impacts to Wetlands A, B, & C will equal 0.028 acre. Therefore, wetland mitigation will not be required for this project. Impacts to all wetlands have been minimized to the greatest extent possible.

Early coordination letters were sent to the IDNR, the IDEM, and USFWS on June 15, 2018. The IDNR responded on July 13, 2018 (Appendix C, pages C18 to C20) with no specific recommendations regarding wetlands. However, the IDNR did provide a list of standard recommendations. All applicable IDNR recommendations are included in the *Environmental Commitments* section of this CE document.

The USFWS responded on June 18, 2018 (Appendix C, pages C21 to C23) stating, "based on a review of the information you provided, USFWS has no objections to the project as currently proposed". The USFWS did not offer any specific recommendations in regard to wetlands. However, the USFWS did provide a list of standard recommendations. All applicable USFWS recommendations are included in the *Environmental Commitments* section of this CE document.

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	<u>Presence</u>	<u>Impacts</u>	
		Yes	No
Terrestrial Habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Unique or High Quality Habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Use the remarks box to identify each type of habitat and the acres impacted (i.e. forested, grassland, farmland, lawn, etc).

Remarks: Based on a desktop review, a site visit on April 13, 2018 by GAI, and the aerial map of the project area (Appendix B, page B3), there is forested riparian habitat within the project area. Vegetation in this area consisted primarily of hackberry (*Celtis occidentalis*), red maple (*Acer rubrum*), shellbark hickory (*Carya laciniosa*), American sycamore (*Celtis occidentalis*), tall fescue (*Festuca arundinacea*), tall goldenrod (*Solidago altissima*), false mermaid (*Floerkea proserpinacoides*), river-bank grape (*Vitis riparia*), Kentucky bluegrass (*Poa pratensis*), switchgrass (*Panicum virgatum*) and spotted touch-me-not (*Impatiens capensis*). Avoidance alternatives are not practicable for this project as impacts to this riparian habitat will be necessary to allow for construction access to the channel and for the placement of scour protection. Approximately 0.14 acre of tree removal will occur with this project. All tree clearing will take place during the inactive season (October 1 and March 31). All impacts will be minor in nature and no mitigation will be required. The total area of soil disturbance associated with this project is anticipated to be 0.3 acre.

Early coordination letters were sent to the IDNR and the USFWS on June 15, 2018 (Appendix C, pages C1 to C2). The IDNR-DFW responded on July 13, 2018 (Appendix C, pages C18 to C20) with recommendations to help avoid and minimize impacts to riparian habitat. All applicable IDNR-DFW recommendations are included in the *Environmental Commitments* section of this CE document.

The USFWS responded on June 18, 2018 (Appendix C, pages C21 to C23) stating, "based on a review of the information you provided, USFWS has no objections to the project as currently proposed". The USFWS also provided a list of standard recommendations. All applicable USFWS recommendations are included in the *Environmental Commitments* section of this CE document.

If there are high incidences of animal movements observed in the project area, or if bridges and other areas appear to be the sole corridor for animal movement, consideration of utilizing wildlife crossings should be taken.

Karst	Yes	No
Is the proposed project located within or adjacent to the potential Karst Area of Indiana?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are karst features located within or adjacent to the footprint of the proposed project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, will the project impact any of these karst features?	<input type="checkbox"/>	<input type="checkbox"/>

Use the remarks box to identify any karst features within the project area. (Karst investigation must comply with the Karst MOU, dated October 13, 1993)

Remarks: Based on a desktop review, the project is located outside the designated karst region of Indiana as outlined in the October 13, 1993 Memorandum of Understanding (MOU). According to the topo map of the project area (Appendix B, page B2), the Indiana Map administered by IGS, and the RFI report (Appendix E, pages E1 to E11), there are no karst features identified within or adjacent to the project area. In the early coordination response (Appendix C, pages C13 to C15), the Indiana Geological Survey (IGS) indicated that there is a moderate liquefaction potential and the project is located in a floodway. They also stated that there is high potential of encountering bedrock, sand, and gravel resources. In addition, they went on to state that there are abandoned industrial mineral sand gravel pits in the area. The response from IGS was communicated with the designer on January 9, 2020. No impacts are expected.

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Threatened or Endangered Species

- Within the known range of any federal species
- Any critical habitat identified within project area
- Federal species found in project area (based upon informal consultation)
- State species found in project area (based upon consultation with IDNR)

Presence

X
X

Impacts

Yes	No
	X
	X

Is Section 7 formal consultation required for this action?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remarks:

Based on a desktop review and the RFI report (Appendix E, pages E1 to E11) completed by GAI on September 12, 2019, the IDNR Clinton County Endangered, Threatened, and Rare (ETR) Species List has been checked and is included in (Appendix E, page E11). The highlighted species on the list reflect the federal and state identified ETR species located within the county. According to the IDNR early coordination response letter dated July 13, 2018 (Appendix C, pages C18 to C20), the Natural Heritage Program's Database has been checked and the Kidneyshell (*Ptychobranchus fasciolaris*) a state species of special concern, has been documented in South Fork Wildcat Creek within the project area. The IDNR went on to state that "we do not foresee any impacts to the Kidneyshell as a result of this project." The IDNR also provided a list of recommendations to avoid or minimize impacts to fish and wildlife. All applicable IDNR recommendations are included in the *Environmental Commitments* section of this CE document.

Indiana Bat and Northern Long-Eared Bat
 Project information was submitted through the USFWS's Information for Planning and Consultation (IPaC) portal, and an official species list was generated (Appendix C, page C24 to C29). The project is within range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*). No additional species were found within or adjacent to the project area other than the Indiana bat and northern long-eared bat.

The project qualifies for the Range-wide Programmatic Informal Consultation for the Indiana bat and northern long-eared bat (NLEB), dated May 2016 (revised February 2018), between FHWA, Federal Railroad Administration (FRA), Federal Transit Administration (FTA), and USFWS. An effect determination key was completed on June 18, 2018, and based on the responses provided, the project was found to "not likely to adversely affect" the Indiana bat and/or the NLEB (Appendix C, pages C31 to C45). INDOT reviewed and verified the effect finding on June 18, 2018 and requested USFWS's review of the finding (Appendix C, page C46 to C47). No response was received from USFWS within the 14-day review period; therefore, it was concluded they concur with the finding. Avoidance and Mitigation Measures (AMMs) are included as firm commitments in the *Environmental Commitments* section of this document.

The most recent INDOT Bridge Inspection Report, dated February 06, 2019 for structure (421)39-12-01792B documented that no migratory birds/nests were found at the structure. However, upon a review of the photo documentation attached to this report evidence of use (i.e.) nests by a bird species protected under the Migratory Bird Treaty Act (MBTA) was found during the inspection. Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the "Potential Migratory Bird on Structure Unique Special Provision". This firm commitment is included in the *Environmental Commitments* of this document.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act, as amended. If new information on endangered species at the site becomes available, or if project plans are changed, USFWS will be contacted for consultation.

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SECTION B – OTHER RESOURCES

Drinking Water Resources

- Wellhead Protection Area
- Public Water System(s)
- Residential Well(s)
- Source Water Protection Area(s)
- Sole Source Aquifer (SSA)

Presence	Impacts	
	Yes	No

If a SSA is present, answer the following:

- Is the Project in the St. Joseph Aquifer System?
- Is the FHWA/EPA SSA MOU Applicable?
- Initial Groundwater Assessment Required?
- Detailed Groundwater Assessment Required?

Yes	No

Remarks:

Sole Source Aquifer
 The project is located in Clinton County, which is not located within the area of the St. Joseph Sole Source Aquifer, the only legally designated sole source aquifer in the state of Indiana. Therefore, the FHWA/EPA Sole Source Aquifer Memorandum of Understanding (MOU) is not applicable to this project. Therefore, a detailed groundwater assessment is not needed and no impacts are expected.

Wellhead Protection Area and Source Water
 The Indiana Department of Environmental Management's Wellhead Proximity Determinator website (<http://www.in.gov/idem/cleanwater/pages/wellhead/>) was accessed on January 9, 2020 by GAI. This project is not located within a Wellhead Protection Area or Source Water Area.

Water Wells
 The Indiana Department of Natural Resources Water Well Record Database website (<https://www.in.gov/dnr/water/3595.htm>) was accessed on June 9, 2020 by GAI. No wells are located near this project. Therefore, no impacts are expected.

Urban Area Boundary
 Based on a desktop review of the INDOT MS4 website (<https://entapps.indot.in.gov/MS4/>) by GAI on June 14, 2018, and the RFI report; this project is not located in an Urban Area Boundary location. No impacts are expected.

Public Water System
 Based on a desktop review, a site visit on April 13, 2018 by GAI, and the aerial map of the project area (Appendix B, page B3) no public water systems were identified. Therefore, no impacts are expected.

Flood Plains

- Longitudinal Encroachment
- Transverse Encroachment
- Project located within a regulated floodplain
- Homes located in floodplain within 1000' up/downstream from project

Presence	Impacts	
	Yes	No
X	X	
X	X	

Discuss impacts according to classification system described in the "Procedural Manual for Preparing Environmental Studies".

Remarks:

Based on a desktop review of The Indiana Department of Natural Resources Indiana Floodway Information Portal website (<http://dnrmmaps.dnr.in.gov/appsphp/fdms/>) by GAI on June 14, 2018 and the RFI report; this project is located in a regulatory floodplain as determined from approved IDNR floodplain maps (Appendix F, page F15). An early coordination letter was sent on August 14, 2019 to the local Floodplain Administrator. The floodplain administrator did not respond within the 30-day time frame.

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This project qualifies as a Category 3 per the current INDOT CE Manual, which states: the modifications to drainage structures included in this project will result in an insubstantial change in their capacity to carry flood water. This change could cause a minimal increase in flood heights and flood limits. These minimal increases will not result in any substantial adverse impacts on the natural and beneficial floodplain values; they will not result in substantial change in flood risks or damage; and they do not have substantial potential for interruption or termination of emergency service or emergency routes; therefore, it has been determined that this encroachment is not substantial.

Farmland	<u>Presence</u>	<u>Impacts</u>	
		<u>Yes</u>	<u>No</u>
Agricultural Lands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Prime Farmland (per NRCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Total Points (from Section VII of CPA-106/AD-1006* _____
**If 160 or greater, see CE Manual for guidance.*

See CE Manual for guidance to determine which NRCS form is appropriate for your project.

Remarks: Based on a desktop review, a site visit on April 13, 2018 by GAI, the aerial map of the project area (Appendix B, page B3), there is no land that meets the definition of farmland under the Farmland Protection Policy Act (FPPA) within or adjacent to the project area. The requirements of the FPPA do not apply to this project; therefore, no impacts are expected. An early coordination letter was sent on June 15, 2018 to the Natural Resources Conservation Services (NRCS) The NRCS responded on June 18, 2018 (Appendix C, page C16) stating that the proposed project would not cause a conversion of prime farmland.

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SECTION C – CULTURAL RESOURCES

Minor Projects PA Clearance	Category	Type	INDOT Approval Dates	N/A
				X

Eligible and/or Listed
Resource Present

Results of Research

Archaeology	
NRHP Buildings/Site(s)	X
NRHP District(s)	
NRHP Bridge(s)	X

Project Effect

No Historic Properties Affected No Adverse Effect Adverse Effect

Documentation
Prepared

Documentation (mark all that apply)

		ES/FHWA Approval Date(s)	SHPO Approval Date(s)
Historic Properties Short Report			
Historic Property Report	X	8/8/2019	9/12/2019
Archaeological Records Check/ Review	X	7/22/2019	9/12/2019
Archaeological Phase Ia Survey Report	X	7/22/2019	9/12/2019
Archaeological Phase Ic Survey Report			
Archaeological Phase II Investigation Report			
Archaeological Phase III Data Recovery			
APE, Eligibility and Effect Determination	X	11/7/2019	12/9/2019
800.11 Documentation	X	11/7/2019	12/9/2019

Memorandum of Agreement (MOA) **MOA Signature Dates** (List all signatories)

Describe all efforts to document cultural resources, including a detailed summary of the Section 106 process, using the categories outlined in the remarks box. The completion of the Section 106 process requires that a Legal Notice be published in local newspapers. Please indicate the publication date, name of paper(s) and the comment period deadline. Likewise include any further Section 106 work which must be completed at a later date, such as mitigation or deep trenching.

Remarks:

Area of Potential Effect (APE):
Weintraut & Associates, qualified professionals meeting the Secretary of Interior's Professional Qualification Standards, defined the APE for this project. The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist, as defined by 36 CFR Section 800.16 (d). Per the current *INDOT Cultural Resources Manual*, the APE for aboveground resources generally extends one-quarter mile on each end of the Bridge No. (421) 39-12-01792B (National Bridge Inventory No. 03220) along US 421/SR 39. The APE for archaeology is a survey area that includes construction activities and right-of-way (Appendix D, page D11).

Coordination with Consulting Parties:
Section 106 of the *National Historic Preservation Act* requires Federal Agencies (or their representatives) to take into account the effects of their undertakings on historic properties. In accordance with 36 CFR 800.2(c), the consulting parties were invited to participate in efforts to identify historic properties which could be potentially

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affected by the undertaking, assess these potential effects, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. On December 12, 2018, a Section 106 Early Coordination Letter (ECL) describing the project and providing instructions for accessing the Historic Bridge Alternative Analysis on INSCOPE, was sent to the identified organizations listed below inviting them to join the Section 106 consultation for the project (see correspondence, Appendix D, pages D32 to D35). The organizations were given 30 days to review the information and decide if they would like to serve as a consulting party for the proposed project. The INDOT-CRO invited Native American Tribes to join the Section 106 consultation on December 12, 2018. INDOT is acting on behalf of FHWA and State Historic Preservation Officer (SHPO) is an automatic consulting party.

Invited Organization	Reply	Date of Reply
Eastern Shawnee Tribe of Oklahoma	None Received	
Miami Tribe of Oklahoma	Yes	1/7/2019
Peoria Tribe of Oklahoma	None Received	
Pokagon Band of Potawatomi Indians	None Received	
Forest County Potawatomi Community	None Received	
Clinton County Historian	None Received	
Clinton County Historical Society and Museum	None Received	
Clinton County Area Plan Commission	None Received	
Clinton County Genealogical Society	None Received	
Historic Preservationists of Clinton County	None Received	
Clinton County Commissioners	None Received	
Clinton County Highway Supervisor	None Received	
Indiana Landmarks – Western Regional Office	Yes	12/12/2019
Dr. James Cooper	None Received	
Historic SPANs Task Force	None Received	

Archaeology:

An archaeological records check was completed on March 22, 2019 for the project area by Weintraut & Associates for the project limits of disturbance, including new, temporary, and existing right-of way. A Phase 1a reconnaissance was completed on May 8, 2019 and located no archaeological resources in the project area. Information from this investigation was included in an Indiana Archaeological Short Report dated July 15, 2019 (see report, Appendix D, pages D25 to D28) recommending that the project be allowed to proceed as planned. The Archaeological Short Report was submitted to INDOT-CRO on July 16, 2019 and subsequently approved with minor revisions on July 22, 2019. The report was submitted to the SHPO for review on August 9, 2019, and SHPO concurred with the findings of the archaeological documentation in a letter dated September 12, 2019 (see correspondence, Appendix D, pages D48 to D50). SHPO went on to state “If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and -29) requires that the discovery must be reported to the Department of Natural Resources within two business days by calling (317) 232-1646.”

Historic Properties:

Weintraut & Associates conducted a historic properties investigation to identify and evaluate the historic significance of properties within the APE. The investigation included a literature review and field investigation. In conducting the literature review, a historian reviewed the NRHP, the Indiana Register of Historic Sites and Structures (State Register), the *Clinton County Interim Report* (Historic Landmarks Foundation of Indiana 1992), the Indiana Historic Buildings and Cemeteries Map (IHBBM), the Indiana State Historic Architectural and Archaeological Research Database (SHAARD), the SHAARD GIS, and the Indiana Historic Bridge Inventory.

Weintraut & Associates conducted a reconnaissance-level survey of the project area on March 16, 2018 to identify architectural and historical resources that will be 50 years old or older by the time of proposed project letting within the APE that retain enough integrity to at least warrant an IHSSI rating of Contributing. The field survey identified two historic resources within the APE for this project, Bridge No. (421)39-12-01792B, which is the focus of this project, and the St. Luke Church and Cemetery.

- Bridge No. (421)39-12-01792B (NBI No.: 3220) is a steel Parker pony truss structure constructed in 1941 and repaired in 1985. The simple-span bridge carries approximately 192 ft. of US 421/SR 39 over the South Fork of Wildcat Creek. The bridge was listed as “Select” in the Indiana Historic Bridge Inventory. It was

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determined eligible as part of the Inventory under Criterion C “because it exemplifies an uncommon highway bridge type in Indiana” and because it “displays exceptional overall or main span length for its type representing an innovative design and/or construction method.”

- The St. Luke Church and Cemetery (IHSSI No.: 023-221-30039) includes a frame, central-steeple church with Gothic Revival-style details constructed around 1871 and a cemetery dating to the mid-nineteenth century. The resource is eligible under Criterion A for significance in the areas of settlement, region, and social history in Union Township as an example of an open-country community church with ties to German heritage and historic trends in American Protestantism. It is also recommended eligible under Criterion C as demonstrating the distinctive characteristics of an open-county community gathering place. The period of significance is circa 1850-1970, the end of the historic period, and includes the period of use for the cemetery and construction of the church and Sunday school addition.

No additional resources were recommended for listing in the NRHP. This information was included in the Historic Property Report (HPR; Appendix D, pages D29 to D30). The HPR was submitted to INDOT-CRO on June 27, 2019 and approved with minor revisions on August 8, 2019. The HPR was submitted to the SHPO and consulting parties on August 9, 2019. The SHPO concurred with the findings of the HPR in a letter dated September 12, 2019 (see correspondence, Appendix D, pages D48 to D50). No other comments were received from the identified consulting parties.

In accordance with the *Historic Bridges PA* and the current *Historic Bridge PA Project Development Process*, a *Historic Bridge Alternatives Analysis* document was prepared for the project. The document defined the purpose and need for the project and extensively evaluated the alternatives previously discussed. From this evaluation, it was determined that Alternative B, rehabilitation for continued vehicular use was the only feasible and prudent alternative for the project. The *Historic Bridge Alternatives Analysis* is included in Appendix D, pages D23 to D24. This document was approved by INDOT on December 6, 2018. The documentation was subsequently provided to consulting parties with the ECL on December 12, 2018 for a 30-day comment period. In a letter dated January 4, 2019, the SHPO stated the alternative appears to meet the Secretary of Interior's Standards for Rehabilitation and agreed that the selected alternative is feasible and prudent and that it would be the more appropriate treatment for this bridge (see correspondence, Appendix D, page D39 to D40). The Indiana Landmarks – Western Regional Office accepted invitation to join consultation on December 12, 2018. The Miami Tribe of Oklahoma joined consultation via a letter dated January 7, 2019 stating, “The Miami Tribe offers no objection to the above-mentioned project at this time, as we are not currently aware of existing documentation directly linking a specific Miami culture or historic site to the project site.” (see correspondence, Appendix D, page D41). The representative also stated that the project is in the aboriginal homelands of the Miami Tribe and requested immediate consultation if any human remains or Native American cultural items falling under the native Americans Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project. No other comments were received from the identified consulting parties.

Documentation, Findings:

The documentation supporting the determination of “No Adverse Effect” as per 36 CFR 800.11(e) was submitted to the INDOT-CRO on October 9, 2019. On November 07, 2019 the INDOT-CRO approved the APE and eligibility determination and issued a finding of “No Adverse Effect” for the project (see finding, Appendix D, pages D1 to D2). The “No Adverse Effect” finding and supporting 800.11(e) documentation was provided to the SHPO and other consulting parties for a 30-day review on November 13, 2019. The Indiana Landmarks concurred with the determination of “No Adverse Effect” in an email message sent November 19, 2019 (see correspondence, Appendix D, page D54). SHPO has reviewed plan sets at 30% and 60% to date and was allotted a 30 day comment period for each. Final plans will be sent to SHPO for a 30 day review period once available. The SHPO concurred with “No Adverse Effect” finding in a letter dated December 9, 2019 (see correspondence, Appendix D, pages D55 to D56); however, SHPO stated that they will not be able comment on the project's impact on the historic bridge until they have had the opportunity to review the final plans. No other comments were received from the identified consulting parties within the allotted period.

Public Involvement:

In accordance with 36CFR 800.2(d), 800.3(e), and 800.6(a)(4), the views of the public were sought regarding the project's finding of “No Adverse Effect.” A public notice was placed in the November 14, 2019 edition of The Times with an established deadline date of December 16, 2019 to provide comments on the “No Adverse Effect” finding determination made by the FHWA. There were no comments received regarding the “No

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Adverse Effect" finding prior to the established deadline date of the public comment period. The public notice and a copy of the publisher's Affidavit of Publication are included in Appendix D, page D53.

According to Stipulation III.A.7 of the *Programmatic Agreement Regarding Management and Preservation of Indiana's Historic Bridges* (Historic Bridges PA), this project is required to have a public hearing due to its involvement with a historic bridge. Therefore, a public hearing will be held once this document has been released for public involvement. This environmental document will be revised after the public involvement requirements have been fulfilled.

SECTION D – SECTION 4(f) RESOURCES/ SECTION 6(f) RESOURCES

Section 4(f) Involvement (mark all that apply)

Parks & Other Recreational Land

- Publicly owned park
- Publicly owned recreation area
- Other (school, state/national forest, bikeway, etc.)

Presence

Use

Yes	No

Evaluations Prepared

- Programmatic Section 4(f)*
- "De minimis" Impact*
- Individual Section 4(f)

FHWA Approval date

--

Wildlife & Waterfowl Refuges

- National Wildlife Refuge
- National Natural Landmark
- State Wildlife Area
- State Nature Preserve

Presence

Use

Yes	No

Evaluations Prepared

- Programmatic Section 4(f)*
- "De minimis" Impact*
- Individual Section 4(f)

FHWA Approval date

--

Historic Properties

- Sites eligible and/or listed on the NRHP

Presence

X

Use

Yes	No
	X

Evaluations Prepared

- Programmatic Section 4(f)*
- "De minimis" Impact*
- Individual Section 4(f)

FHWA Approval date

--

*FHWA approval of the environmental document also serves as approval of any Section 4f Programmatic and/or De minimis evaluation(s) discussed below.

Discuss Programmatic Section 4(f) and "de minimis" Section 4(f) impacts in the remarks box below. Individual Section 4(f) documentation must be separate Draft and Final documents. For further discussions on Programmatic, "de minimis" and

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Individual Section 4(f) evaluations please refer to the "Procedural Manual for the Preparation of Environmental Studies". Discuss proposed alternatives that satisfy the requirements of Section 4(f).

Remarks:

Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic properties regardless of ownership. Lands subject to this law are considered Section 4(f) resources.

Based on a desktop review, a site visit on April 13, 2018 by GAI, the aerial map of the project area (Appendix B, page B3), and the RFI report (Appendix E, pages E1 to E11), there are two 4(f) resources located within the 0.5 mile search radius. There are two section 4(f) resources located within or adjacent to the project area.

Historic Properties

Two historic resources are located within the APE for this project, Bridge No. (421)39-12-01792B, which is the focus of this project, and the St. Luke Church and Cemetery.

- Bridge No. (421)39-12-01792B, which is identified as a resource eligible for inclusion in the NRHP and as a Select Bridge according to the Indiana Historic Bridge Inventory (December 2010). The effect finding for Bridge No. (421)39-12-01792B is covered under the Historic Bridges PA (Appendix D, page D1). This resource is used for transportation purposes and no Section 4(f) conversion will take place with this project; therefore, no Section 4(f) evaluation is required for Bridge No. (421)39-12-01792B (Appendix D, page D2)
- The St. Luke Church & Cemetery (IHSSI No.: 023-221-30039) was also identified as a resource eligible in the NRHP under criterion A and C as mentioned above in the *Cultural Resources* section of this document. This undertaking will not convert property from the St. Luke Church & Cemetery, a Section 4(f) historic property, to a transportation use; INDOT, acting on FHWA's behalf, has determined the appropriate Section 106 finding is "No Adverse Effect;" therefore no Section 4(f) evaluation is required for the St. Luke Church & Cemetery (Appendix D, page D2)

Programmatic Use Determination:

For the Historic Bridge Programmatic Section 4(f) evaluation, a proposed action will "use" a bridge that is on or eligible for inclusion on the National Register when the action will impair the historic integrity of the bridge either by rehabilitation or demolition. Rehabilitation that does not impair the historic integrity of the bridge, as determined by procedures implementing Section 106, is not subject to Section 4(f). There are five criteria that the FHWA require for a historic bridge to be applicable for programmatic use and they are listed below.

1. The bridge is to be replaced or rehabilitated with federal funds.
2. The project will require the use of a historic bridge structure which is on or is eligible for listing on the National Register of Historic Places.
3. The bridge is not a National Historic Landmark.
4. The FHWA Division Administrator determines that the facts of the project match those set forth in the sections of this document labeled Alternatives, Findings, and Mitigation.
5. Agreement among the FHWA, the State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106 of the NHPA.

This project satisfies all five of the above criteria and therefore meets the requirements pursuant to Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. 303, and Section 18(a) of the Federal-Aid Highway Act of 1968 23 U.S.C. 138.

The Programmatic Evaluation requires the evaluation of 3 alternatives: the do nothing (no build), build on a new location without using the old bridge, and rehabilitate without affecting the historic integrity of the bridge. If the project meets any one of these avoidance alternatives, then it is considered non-use of Section 4(f) land. This project will rehabilitate the existing bridge without affecting the historic integrity of the bridge. Thorough analysis of the alternatives determined that Alternative B, rehabilitation for continued vehicular use, is the preferred alternative that fulfills the proposed purpose and need for this project. A detailed description of these alternatives is found in the *Project Description* and *Other Alternatives Considered* sections of this document. In addition, applicable pages of the *Historic Bridge Alternatives Analysis* are included in Appendix D, pages D23 to D24.

This is page 20 of 29 Project name: US 421 over South Fork Wildcat Creek Date: February 21, 2020

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The Historic Bridge Programmatic Evaluation requires the evaluation of 3 avoidance alternatives: the do nothing, build a new structure at a different location without affecting the historic integrity of the historic bridge, and rehabilitate the historic bridge without affecting the historic integrity of the structure. If the project meets any one of these avoidance alternatives, then it is considered non-use of Section 4(f) land. This project will rehabilitate the existing bridge without affecting the historic integrity of the bridge, therefore there will be no use of Section 4(f) properties.

The *Historic Bridge Alternatives Analysis* was approved by INDOT on December 6, 2018. The documentation was subsequently provided to consulting parties with the ECL on December 12, 2018 for a 30-day comment period. In a letter dated January 04, 2019, the SHPO stated the preferred alternative appears to meet the Secretary of Interior's Standards for Rehabilitation and agreed that the selected alternative is feasible and prudent and should be pursued (see correspondence, Appendix D, pages D39 to D40).

The historic integrity of the bridge will be maintained through coordination and consultation with the Indiana SHPO during the design phase of the project with the required plan submittals per the Historic Bridges PA. Therefore, pursuant to the Programmatic Section 4(f) evaluation for Historic Bridge Programmatic Section 4(f) evaluation, no Section 4(f) use will occur.

FHWA approval of the CE document is approval of the historic bridge programmatic evaluation.

Section 6(f) Involvement

Presence

Use

Section 6(f) Property

Yes

No

Discuss proposed alternatives that satisfy the requirements of Section 6(f). Discuss any Section 6(f) involvement.

Remarks:

The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreation resources. Section 6(f) of this Act prohibits conversion of lands purchased with LWCF monies to a non-recreation use.

A review of 6(f) properties on the Land and Water Conservation Fund (LWCF) website at <https://www.lwcfcoalition.com/tools> revealed that there are no LWCF properties in Clinton County (Appendix H, page H1). Therefore, there will be no impacts to 6(f) resources as a result of this project.

SECTION E – Air Quality

Air Quality

Conformity Status of the Project

Is the project in an air quality non-attainment or maintenance area?

Yes

No

If YES, then:

Is the project in the most current MPO TIP?

Is the project exempt from conformity?

If the project is NOT exempt from conformity, then:

Is the project in the Transportation Plan (TP)?

Is a hot spot analysis required (CO/PM)?

Level of MSAT Analysis required?

Level 1a Level 1b Level 2 Level 3 Level 4 Level 5

Remarks:

This project is included in the Fiscal Year (FY) 2018-2021 Statewide Transportation Improvement Program (STIP) (Appendix G, page G1). Please note that this project will be incorporated into the new 2020-2024 STIP. Coordination occurred with the INDOT PM on January 17, 2020, in which a response was received

This is page 21 of 29 Project name: US 421 over South Fork Wildcat Creek Date: February 21, 2020

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County ClintonRoute US 421Des. No. 1593276**Indirect and Cumulative Impacts**

Will the proposed action result in substantial indirect or cumulative impacts?

Yes

No

Remarks:

Indirect impacts are effects which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate. Cumulative impacts affect the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.

There have been no significant effects identified which could be caused by the proposed project and which will emerge later in time or farther removed in distance with regard to indirect impacts. In addition, there have been no significant effects identified which may induce changes in the pattern of land use, population density or growth rate, or related effects on air and water or other natural systems, including ecosystems. Additionally, with regard to cumulative impacts, no significant impacts on the environment have been identified which could result from the incremental impact of the proposed project when added to other past, present and reasonably foreseeable future actions. The bridge rehabilitation would serve in continuing the service life of an existing structure; therefore, the project is not likely to cause substantial indirect or cumulative impacts.

Public Facilities & ServicesWill the proposed action result in substantial impacts on health and educational facilities, public and private utilities, emergency services, religious institutions, airports, public transportation or pedestrian and bicycle facilities? *Discuss how the maintenance of traffic will affect public facilities and services.*

Yes

No

Remarks:

Based on a desktop review, a site visit on April 13, 2018 by GAI, the aerial map of the project area (Appendix B, page B3) and the Red Flag Investigation (RFI) report (Appendix E, pages E1 to E11), there is one religious facility and one cemetery located within 0.5 mile of the project. The religious facility identified is known as the Saint Luke United Church of Christ and its accompanying cemetery. This church is located at 2193 SR 39 N Frankfort, IN 46041, approximately 0.19 mile northwest of the project area. Due to the scope of work, a road closure on US-421 will be necessary. Access to all properties will be maintained during construction. Therefore, no impacts are expected.

An early coordination letter was sent to Saint Luke Church on July 15, 2019. Saint Luke Church did not respond to the early coordination letter.

Utilities known to be within the project area include an overhead electric line, a telephone utility conduit, and buried copper and fiber optic cables. Utility coordination is currently ongoing and will continue as the project advances.

The project may pose a temporary inconvenience to traveling motorists (including school buses and emergency services) due to the proposed road closure and detour route; however, no significant delays are anticipated and all inconveniences will cease upon project completion.

It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access.

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Environmental Justice (EJ) (Presidential EO 12898)

During the development of the project were EJ issues identified?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Does the project require an EJ analysis?

If YES, then:

Are any EJ populations located within the project area?

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Will the project result in adversely high or disproportionate impacts to EJ populations?

Remarks:

Under FHWA Order 6640.23A, FHWA and the project sponsor, as a recipient of funding from FHWA, are responsible to ensure that their programs, policies, and activities do not have a disproportionately high and adverse effect on minority or low-income populations. Per the current INDOT Categorical Exclusion Manual, an Environmental Justice (EJ) Analysis is required for any project that has two or more relocations or 0.5 acre of additional permanent right-of-way. This project will have fewer than two relocations and will require less than 0.5 acre of additional permanent right-of-way; therefore, an EJ analysis is not required.

Relocation of People, Businesses or Farms

Will the proposed action result in the relocation of people, businesses or farms?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Is a Business Information Survey (BIS) required?

Is a Conceptual Stage Relocation Study (CSRS) required?

Has utility relocation coordination been initiated for this project?

Number of relocations: _____ Residences: _____ Businesses: _____ Farms: _____ Other: _____

If a BIS or CSRS is required, discuss the results in the remarks box.

Remarks:

No relocations of people, businesses, or farms will take place as a result of this project.

Utility coordination was conducted on May 17, 2019 by GAI, and notice was sent out to the following utility companies AT&T, Frankfort Municipal Utilities (Electric), Frankfort Municipal Utilities (Sewer), Frankfort Municipal Utilities (Water), Mulberry Telecommunications, and Tipmont REMC. Out of the listed agencies, AT&T and Frankfort Municipalities (Electric) both have facilities located within the project area. Utilities known to be within the project area include an overhead electric line, a telephone utility conduit, and buried copper and fiber optic cables. Utility coordination is currently ongoing and will continue as the project advances.

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SECTION H – HAZARDOUS MATERIALS & REGULATED SUBSTANCES

Hazardous Materials & Regulated Substances (Mark all that apply)

Red Flag Investigation

Phase I Environmental Site Assessment (Phase I ESA)

Phase II Environmental Site Assessment (Phase II ESA)

Design/Specifications for Remediation required?

Documentation

X

No Yes/ Date

ES Review of Investigations		September 12, 2019
------------------------------------	--	--------------------

Include a summary of findings for each investigation.

Remarks:

Based on a review of GIS and available public records, an RFI was completed on September 12, 2019 by GAI (Appendix E, pages E1 to E11). One confined feeding operations (CFO) and one open dump waste site are located within 0.5 mile of the project area; however, no hazmat sites were identified in or within 0.5 mile of the project area that will impact the project. The nearest confined feeding operation is 0.32 mile from the project area. The nearest open dump site is 0.47 mile from the project area. Based on the scope of the project, the type of sites identified, and their distance from the project area, no impacts are expected. Further investigation for hazardous material concerns is not required at this time.

Five IDEM 303d Listed Streams were identified within the 0.5-mile search radius. South Fork Wildcat Creek (all five segments) is listed for E. coli, dissolved oxygen, and polychlorinated biphenyls (PCBs). Workers who are working in or near water with E. coli should take care to wear appropriate personal protective equipment (PPE), observe proper hygiene procedures, including regular hand washing, and limit personal exposure. Exposure to PCBs in fish tissue is considered low, assuming workers are not eating biota surrounding or associated with the water body.

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SECTION I – PERMITS CHECKLIST

Permits (mark all that apply)

Likely Required

Army Corps of Engineers (404/Section10 Permit)

Individual Permit (IP)	<input type="checkbox"/>
Nationwide Permit (NWP)	<input checked="" type="checkbox"/>
Regional General Permit (RGP)	<input type="checkbox"/>
Pre-Construction Notification (PCN)	<input type="checkbox"/>
Other	<input type="checkbox"/>
Wetland Mitigation required	<input type="checkbox"/>
Stream Mitigation required	<input type="checkbox"/>

IDEM

Section 401 WQC	<input checked="" type="checkbox"/>
Isolated Wetlands determination	<input type="checkbox"/>
Rule 5	<input type="checkbox"/>
Other	<input type="checkbox"/>
Wetland Mitigation required	<input type="checkbox"/>
Stream Mitigation required	<input type="checkbox"/>

IDNR

Construction in a Floodway	<input checked="" type="checkbox"/>
Navigable Waterway Permit	<input type="checkbox"/>
Lake Preservation Permit	<input type="checkbox"/>
Other	<input type="checkbox"/>
Mitigation Required	<input type="checkbox"/>

US Coast Guard Section 9 Bridge Permit

Others (Please discuss in the remarks box below)

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Remarks:

This following Permits will be required for this project:

- IDEM 401 Water Quality Certification - A Section 401 WQC will be required from IDEM. As noted above, mitigation will not be required, as less than 300 linear feet of waterway and less than 0.1 acre of wetlands will be impacted by the project.
- Section 404 Permit – A Section 404 Nationwide Permit will also be required from the USACE. As noted above, wetland impacts will occur. As the project is anticipated to impact less than 300 linear feet of waterway and less than 0.1 acre of wetlands, no mitigation is anticipated to be required.
- IDNR Construction in a Floodway (CIF) Permit – This project is within the South Fork Wildcat Creek floodway, which does not meet the rural or drainage area exemptions; therefore, a CIF Permit will be required.

Applicable recommendations provided by IDNR and IDEM are included in the *Environmental Commitments* section of this document. If permits are found to be necessary, the conditions of the permit will be requirements of the project and will supersede these recommendations.

Early coordination letter was sent to the IDNR and USACE on June 15, 2018. The IDNR-DFW responded on July 13, 2018 stating that the proposal will require formal approval from their agency for construction in a floodway, pursuant to the Flood Control Act (IC 14-28-1).

The USACE did not respond to the early coordination letter.

Coordination with IDEM was accomplished electronically on June 15, 2018 using IDEM's website at: <https://www.in.gov/idem/5284.htm>. IDEM provided an automated standardized response letter that provides pertinent information related to the 401/404 permitting requirements.

It is the responsibility of INDOT to identify and obtain all required permits.

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SECTION J- ENVIRONMENTAL COMMITMENTS

The following information should be provided below: List all commitments, name of agency/organization requesting the commitment(s), and indicating which are firm and which are for further consideration. The commitments should be numbered.

Remarks:

Firm:

1. It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access. (INDOT ESD)
2. If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately. (INDOT ES & INDOT, Crawfordsville District)
3. Any work in a wetland area within right-of-way or in borrow/waste areas is prohibited unless specifically allowed in the U.S. Army Corps of Engineers permit. (INDOT ESD)
4. It is the responsibility of the INDOT project manager to update and coordinate the STIP as appropriate before RFC and ECF approval. (INDOT, Crawfordsville District).
5. South Fork Wildcat Creek is listed for E. coli, dissolved oxygen, and polychlorinated biphenyls (PCBs). Workers who are working in or near water with E. coli should take care to wear appropriate personal protective equipment (PPE), observe proper hygiene procedures, including regular hand washing, and limit personal exposure. Exposure to PCBs in fish tissue is considered low, assuming workers are not eating biota surrounding or associated with the water body. (INDOT SAM)
6. (421)39-12-01792B has shown evidence of use (i.e.) nests by a bird species protected under the Migratory Bird Treaty Act (MBTA) during the February 06, 2019 inspection. Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the "Potential Migratory Bird on Structure Unique Special Provision". (INDOT ESD)
7. Per the Historic Bridge Programmatic Agreement, the bridge owner will provide rehabilitation plans to the Indiana State Historic Preservation Officer (SHPO) at 30%, 60%, and final. The Indiana SHPO will have (30) days to review and provide comments. (SHPO)
8. The bridge owner will develop plans to rehabilitate the bridge in accordance with the Secretary of the Interior's Standards for Rehabilitation, or as close to the Standards as is practicable. (SHPO)
9. The bridge owner will complete all photo documentation requirements in accordance with the specification provided by the Indiana SHPO. (SHPO)
10. The bridge owner will ensure that all requirements from SHPO have been implemented before INDOT requests construction authorization from FHWA. (SHPO)
11. General AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including applicable AMM's. (USFWS)
12. Lighting AMM 1: Direct temporary lighting away from suitable habitat during the active season. (USFWS)
13. Tree Removal AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments to avoid tree removal. (USFWS)
14. Tree Removal AMM 2: Apply time of year restrictions for tree removal when bats are not likely to be present, or limit tree removal to 10 or fewer trees per project at any time of the year within 100 feet of existing road/rail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed. (USFWS)
15. Tree Removal AMM 3: Ensure tree removal is limited to that specified in the project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits). (USFWS)
16. Tree Removal AMM 4: Do not remove documented Indiana bat or NLEB roosts that are still suitable for roosting or trees within 0.25 mile of roosts or documented foraging habitat any time of year. (USFWS)

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For Consideration:

17. For streambed stabilization or scour protection, riprap or other stabilization materials must not be placed in the active stream channel above the existing stream bed elevation (flowline). This is to prevent obstructions to the movement of aquatic organisms upstream and downstream. (IDNR-DFW)
18. Impacts to non-wetland forest of one (1) acre or more should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on the area. Impacts to non-wetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10 inches dbh or greater (5:1 mitigation based on the number of large trees) or by using the 1:1 replacement ratio based on area depending on the type of habitat impacted (individual canopy tree removal in an urban streetscape or park-like environment versus removal of habitat supporting a tree canopy, woody understory, and herbaceous layer). Impacts under .10 acre typically do not require mitigation or additional planting beyond seeding and stabilizing disturbed areas, though there are exceptions for high quality habitat sites. (IDNR-DFW)
19. Riprap or other hard bank stabilization materials should be used only at the toe of the side slopes up to the ordinary high water mark (OHWM) with the exception of areas directly under bridges for instance. The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. (IDNR-DFW).
20. Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark, or with cracks, crevices or cavities) from April 1 through September 30. (IDNR-DFW)
21. Do not excavate in the low flow area except for the placement of piers, foundations and riprap, or removal of the old structure. (IDNR-DFW)
22. Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds. (IDNR-DFW)
23. Operate equipment used to replace the bridge from the existing roadway. (IDNR-DFW)
24. Use minimum average 6-inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. (IDNR-DFW)
25. Restrict below low-water work in streams to placement of culverts, piers, pilings and/or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap. (USFWS)
26. Minimize the extent of hard armor (riprap) in bank stabilization by using bioengineering techniques whenever possible. If riprap is utilized for bank stabilization, extend it below low-water elevation to provide aquatic habitat. (USFWS)
27. Avoid all work within the inundated part of the stream channel (in perennial streams and larger intermittent streams) during the fish spawning season (April 1 through June 30), except for work within sealed structures such as caissons or cofferdams that were installed prior to the spawning season. No equipment shall be operated below Ordinary High Water Mark during this time unless the machinery is within the caissons or on the cofferdams. (USFWS)
28. Evaluate wildlife crossings under bridge/culverts projects in appropriate situations. Suitable crossings include flat areas below bridge abutments with suitable ground cover, high water shelves in culverts, amphibian tunnels and diversion fencing. (USFWS)

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Date: February 21, 2020

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SECTION K- EARLY COORDINATION

Please list the date coordination was sent and all agencies that were contacted as a part of the development of this Environmental Study. Also, include the date of their response or indicate that no response was received. INDOT and FHWA are automatically considered early coordination participants and should only be listed if a response is received.

Remarks:

Agency	Coordination Sent	Response Received	Appendix Page(s)
U.S. Fish Wildlife Service	6/15/2018	6/18/2018	C21 to C23
Natural Resources Conservation Service	6/15/2018	6/18/2018	C16
Department of the Army, Louisville District, Corps of Engineers	6/15/2018	No Response	-
National Park Service, Midwest Regional Office	6/15/2018	No Response	-
U.S. Department of Housing & Urban Development, Chicago Regional Office	6/15/2018	No Response	-
Indiana Geological Survey, Environmental Geology Section	6/15/2018	6/15/2018	C13 to C15
IDNR, Division of Fish and Wildlife	6/15/2018	7/13/2018	C18 to C20
IDEM	6/15/2018	6/15/2018	C5 to C12
INDOT Aviation Section	6/15/2018	6/25/2018	C17
INDOT, Public Hearings	6/15/2018	No Response	-
Clinton County Surveyor	6/15/2018	No Response	-
Clinton County Highway Department	6/15/2018	No Response	-
Clinton County Floodplain Administrator	8/14/2019	No Response	-
St. Luke United Church of Christ	7/15/2019	No Response	-

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Appendix A

INDOT Supporting Documentation

Item	Appendix Page
Threshold Chart	A1

Categorical Exclusion Level Thresholds

	PCE	Level 1	Level 2	Level 3	Level 4 ¹
Section 106	Falls within guidelines of Minor Projects PA	“No Historic Properties Affected”	“No Adverse Effect”	-	“Adverse Effect” Or Historic Bridge involvement ²
Stream Impacts	No construction in waterways or water bodies	< 300 linear feet of stream impacts	≥ 300 linear feet of stream impacts	-	Individual 404 Permit
Wetland Impacts	No adverse impacts to wetlands	< 0.1 acre	-	< 1 acre	≥ 1 acre
Right-of-way³	Property acquisition for preservation only or none	< 0.5 acre	≥ 0.5 acre	-	-
Relocations	None	-	-	< 5	≥ 5
Threatened/Endangered Species (Species Specific Programmatic for Indiana bat & northern long eared bat)	“No Effect”, “Not likely to Adversely Affect” (Without AMMs ⁴ or with AMMs required for all projects ⁵)	“Not likely to Adversely Affect” (With any other AMMs)	-	“Likely to Adversely Affect”	Project does not fall under Species Specific Programmatic
Threatened/Endangered Species (Any other species)	Falls within guidelines of USFWS 2013 Interim Policy	“No Effect”, “Not likely to Adversely Affect”	-	-	“Likely to Adversely Affect”
Environmental Justice	No disproportionately high and adverse impacts	-	-	-	Potential ⁶
Sole Source Aquifer	Detailed Assessment Not Required	-	-	-	Detailed Assessment
Floodplain	No Substantial Impacts	-	-	-	Substantial Impacts
Coastal Zone Consistency	Consistent	-	-	-	Not Consistent
National Wild and Scenic River	Not Present	-	-	-	Present
New Alignment	None	-	-	-	Any
Section 4(f) Impacts	None	-	-	-	Any
Section 6(f) Impacts	None	-	-	-	Any
Added Through Lane	None	-	-	-	Any
Permanent Traffic Alteration	None	-	-	-	Any
Coast Guard Permit	None	-	-	-	Any
Noise Analysis Required	No	-	-	-	Yes
Air Quality Analysis Required	No	-	-	-	Yes ⁷
Approval Level	Concurrence by INDOT District Environmental or Environmental Services	Yes	Yes	Yes	Yes
<ul style="list-style-type: none"> • District Env. Supervisor • Env. Services Division • FHWA 				Yes	Yes

¹Coordinate with INDOT Environmental Services. INDOT will then coordinate with the appropriate FHWA Environmental Specialist.

²Any involvement with a bridge processed under the Historic Bridge Programmatic Agreement.

³Permanent and/or temporary right-of-way.

⁴AMMs = Avoidance and Mitigation Measures.

⁵AMMs determined by the IPAC decision key to be needed that are listed in the USFWS *User’s Guide for the Range-wide Programmatic Consultation for Indiana bat and Northern long-eared bat* as “required for all projects”.

⁶Potential for causing a disproportionately high and adverse impact.

⁷Hot Spot Analysis and/or MSAT Quantitative Emission Analysis.

*Substantial public or agency controversy may require a higher-level NEPA document.

Appendix B

Graphics

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CARROLL

CASS

HOWARD

TIPPECANOE



TIPTON

MONTGOMERY

HAMILTON

BOONE

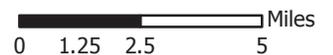


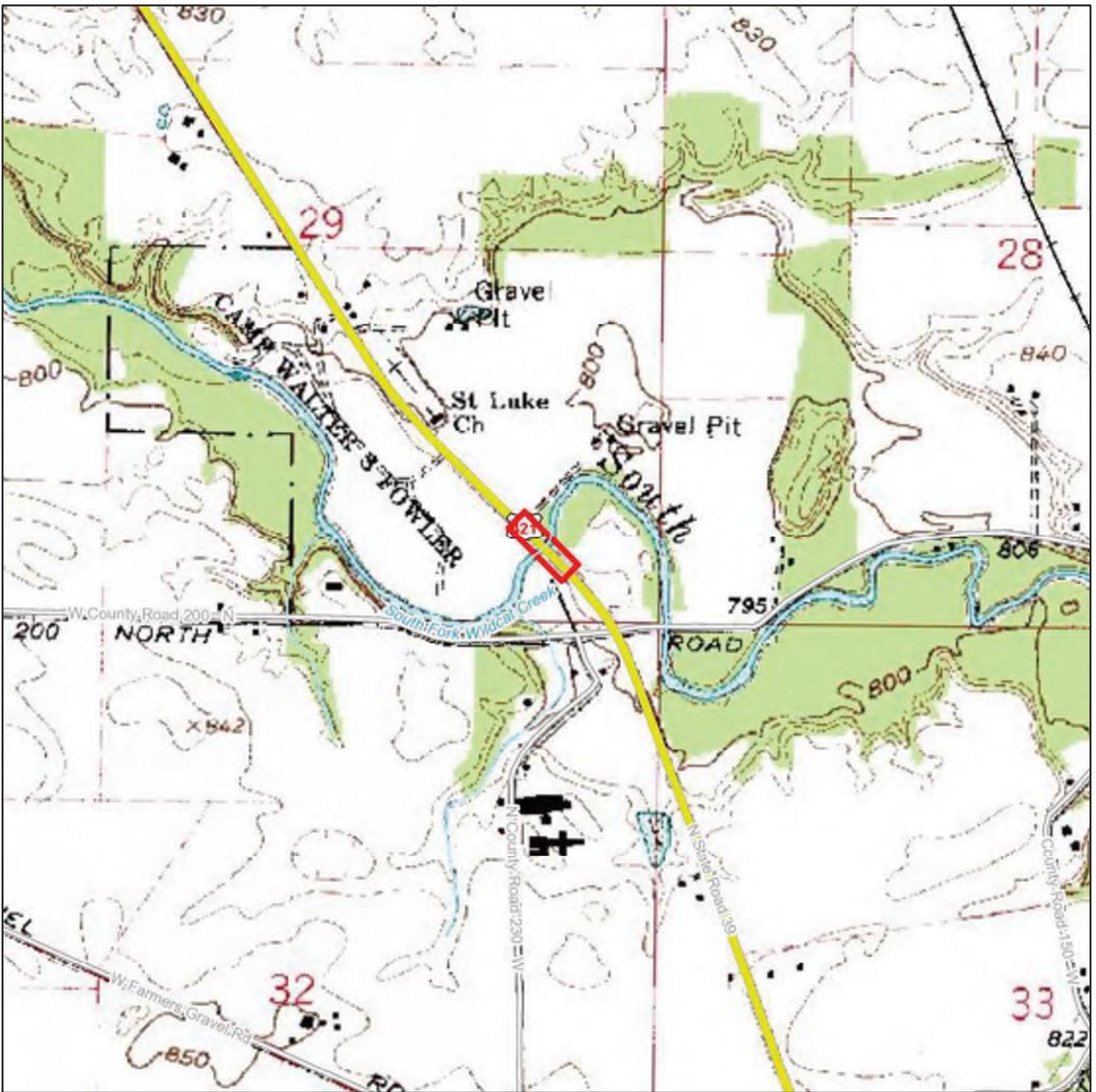
gai consultants

State Location Map

**US 421 over South Fork Wildcat Creek
Bridge Rehabilitation Project
Clinton County, Indiana
Des 1593276**

N





USGS Topo Map

**US 421 over South Fork Wildcat Creek
Bridge Rehabilitation Project
Clinton County, Indiana
Des 1593276**

Legend

- Study Area
- Interstate
- US Roads
- State Roads
- Local Roads
- + Railroad



0 485 970 1,940 Feet
Frankfort USGS 7.5 Minute Topo Map

Service Layer Credits: INDOT
United States Geological Survey (USGS)





Aerial Location Map

**US 421 over South Fork Wildcat Creek
Bridge Rehabilitation Project
Clinton County, Indiana
Des 1593276**

Legend

-  Study Area
-  Interstate
-  US Roads
-  State Roads
-  Local Roads
-  Railroad



Service Layer Credits: INDOT
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Distribution Airbus DS





Photo Location Map

**US 421 over South Fork Wildcat Creek
Bridge Rehabilitation Project
Clinton County, Indiana
Des 1593276**

Legend

- | | | | |
|---|----------------------|---|-------------|
|  | Study Area |  | Interstate |
|  | Photo Location Point |  | US Roads |
| | |  | State Roads |
| | |  | Local Roads |
| | |  | Railroad |



Service Layer Credits: INDOT
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Distribution Airbus DS





Photo 1. Looking southeast along US 421 at southern project terminus.



Photo 2. Looking northwest along US 421 toward structure over SF Wildcat Creek.



Photo 3. Looking west at eastern bank of SF Wildcat Creek from southern approach.



Photo 4. Looking northwest at eastern bank from southern approach.



Photo 5. Looking south (downstream) along SF Wildcat Creek.



Photo 6. Looking north (upstream) along SF Wildcat Creek.



Photo 7. Looking northeast at structure carrying US 421 over SF Wildcat Creek.



Photo 8. Looking south at structure carrying US 421 over SF Wildcat Creek.



Photo 9. Looking south at western banks of SF Wildcat Creek from northern approach.



Photo 10. Looking east at western banks of SF Wildcat Creek from northern approach.



Photo 11. Looking southeast along US 421 towards structure over SF Wildcat Creek.



Photo 12. Looking northwest along US 421 at northern project terminus.

PROJECT	DESIGNATION
1593276	1593276
CONTRACT	BRIDGE FILE
B-42017	(421) 39-12-01792C

STRUCTURE INFORMATION				
STRUCTURE	TYPE	SPAN AND SKEW	OVER	STATION
(421) 39-12-01792C	Steel Truss Bridge with Prestressed Concrete Box Beam End Spans	3 Spans: 30'-8 1/2", 125'-0", 30'-8 1/2" Skew: Square	South Fork Wildcat Creek	Sta. 43+50.00 Line "A"

INDIANA DEPARTMENT OF TRANSPORTATION



BRIDGE REHABILITATION PLANS

FOR SPANS OVER 20 FEET

ROUTE: US 421

AT: RP 126+82

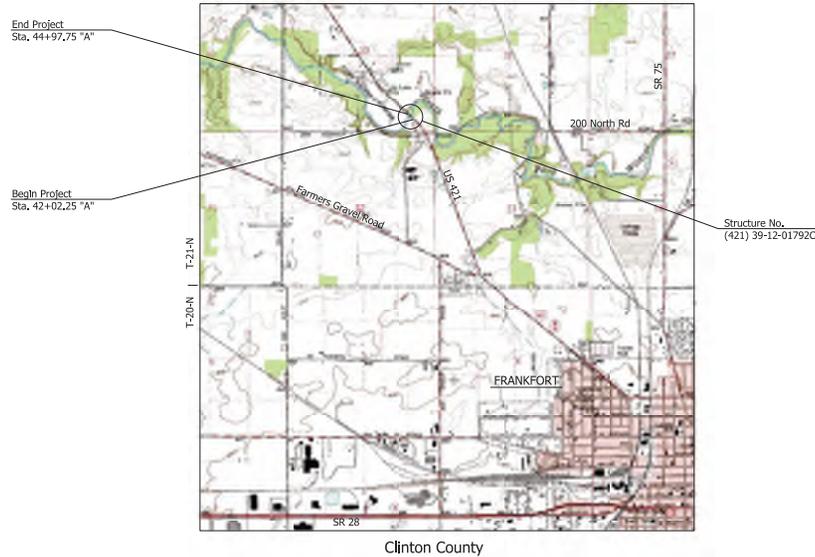
PROJECT NO. 1593276 P.E.

R/W

1593276 CONST.

NO ADDITIONAL RIGHT-OF-WAY
REQUIRED FOR THIS PROJECT

Bridge Deck and End Spans Replacement on US 421 over South Fork Wildcat Creek, located 2.24 Miles south of SR 38, in Section 29, T-21-N, R-1-W, Union Township, Clinton County, Indiana



TRAFFIC DATA	
A.A.D.T. (2030)	4,425 V.P.D.
A.A.D.T. (2040)	6,298 V.P.D.
D.H.V.	567 V.P.H.
DIRECTIONAL DISTRIBUTION	50/50 %
TRUCKS	12% A.A.D.T. 9% D.H.V.

DESIGN DATA	
DESIGN SPEED	55 M.P.H.
PROJECT DESIGN CRITERIA	3R (NON-FREEWAY)
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL
RURAL/URBAN	RURAL
TERRAIN	LEVEL
ACCESS CONTROL	NONE



LATITUDE: 40° 18' 59" N LONGITUDE: 86° 32' 48" W

BRIDGE LENGTH:	0.037	MI.
ROADWAY LENGTH:	0.020	MI.
TOTAL LENGTH:	0.057	MI.
MAX. GRADE:	0.0	%



gai consultants

Indianapolis 201 North Illinois Street, Suite 1700, Indianapolis, IN 46204
Fishers 9998 Crosspoint Boulevard, Suite 110, Indianapolis, IN 46256

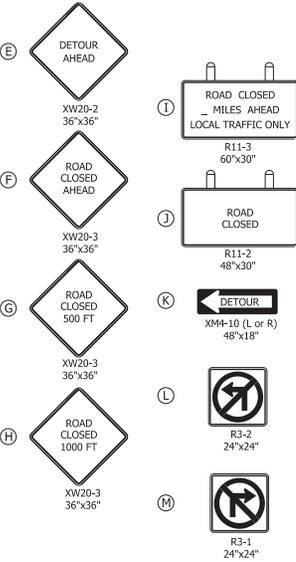
INDIANA DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS DATED 2020
TO BE USED WITH THESE PLANS.

PLANS PREPARED BY: GAI Consultants, Inc. (317) 436-9150 PHONE NUMBER
CERTIFIED BY: _____ DATE
APPROVED FOR LETTING: _____ DATE
INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE FILE	
(421) 39-12-01792 C	DESIGNATION
1593276	DESIGNATION
SHEETS	
1	of 30
CONTRACT	
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	1593276

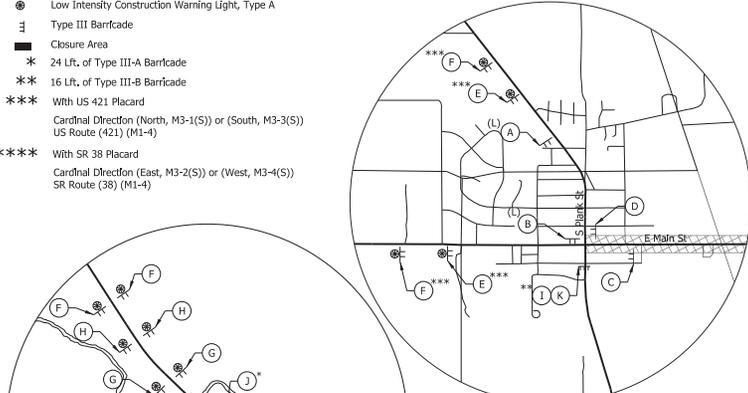
SIGN LEGEND:

- (A)** Advance Turn Detour Route Marker Assembly
 Detour (XM4-6)
 Cardinal Direction (North, M3-1(S) or (South, M3-3(S))
 US Route (421) (M1-4)
 Advance Turn Arrow (M5-1 or M5-2) (L or R)
- (B)** Directional Detour Route Marker Assembly
 Detour (XM4-6)
 Cardinal Direction (North, M3-1(S) or (South, M3-3(S))
 US Route (421) (M1-4)
 Directional Arrow (M6-1 or M6-2) (L or R)
- (C)** Confirming Detour Route Marker Assembly
 Detour (XM4-6)
 Cardinal Direction (North, M3-1(S) or (South, M3-3(S))
 US Route (421) (M1-4)
 Directional Arrow (M6-3)
- (D)** End Detour Route Marker Assembly
 End Detour (XM4-8a)
 Cardinal Direction (North, M3-1(S) or (South, M3-3(S))
 US Route (421) (M1-4)

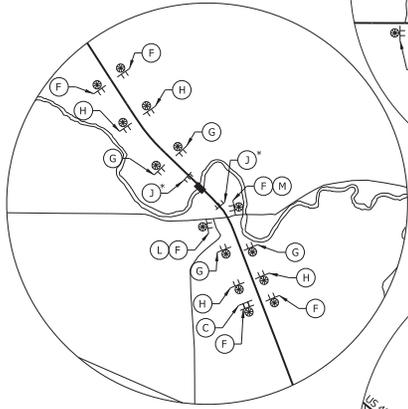


LEGEND

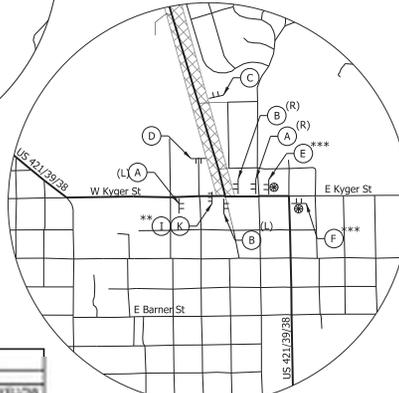
- XXXXX Detour Route
- ⊥ Construction Sign
- ⊙ Low Intensity Construction Warning Light, Type A
- ⊥ Type III Barricade
- Closure Area
- * 24 Lft. of Type III-A Barricade
- ** 16 Lft. of Type III-B Barricade
- *** With US 421 Placard
- **** Cardinal Direction (North, M3-1(S) or (South, M3-3(S))
 US Route (421) (M1-4)
- ***** With SR 38 Placard
- ***** Cardinal Direction (East, M3-2(S) or (West, M3-4(S))
 SR Route (38) (M1-4)



DETAIL 'C'
Not to Scale



DETAIL 'B'
Not to Scale



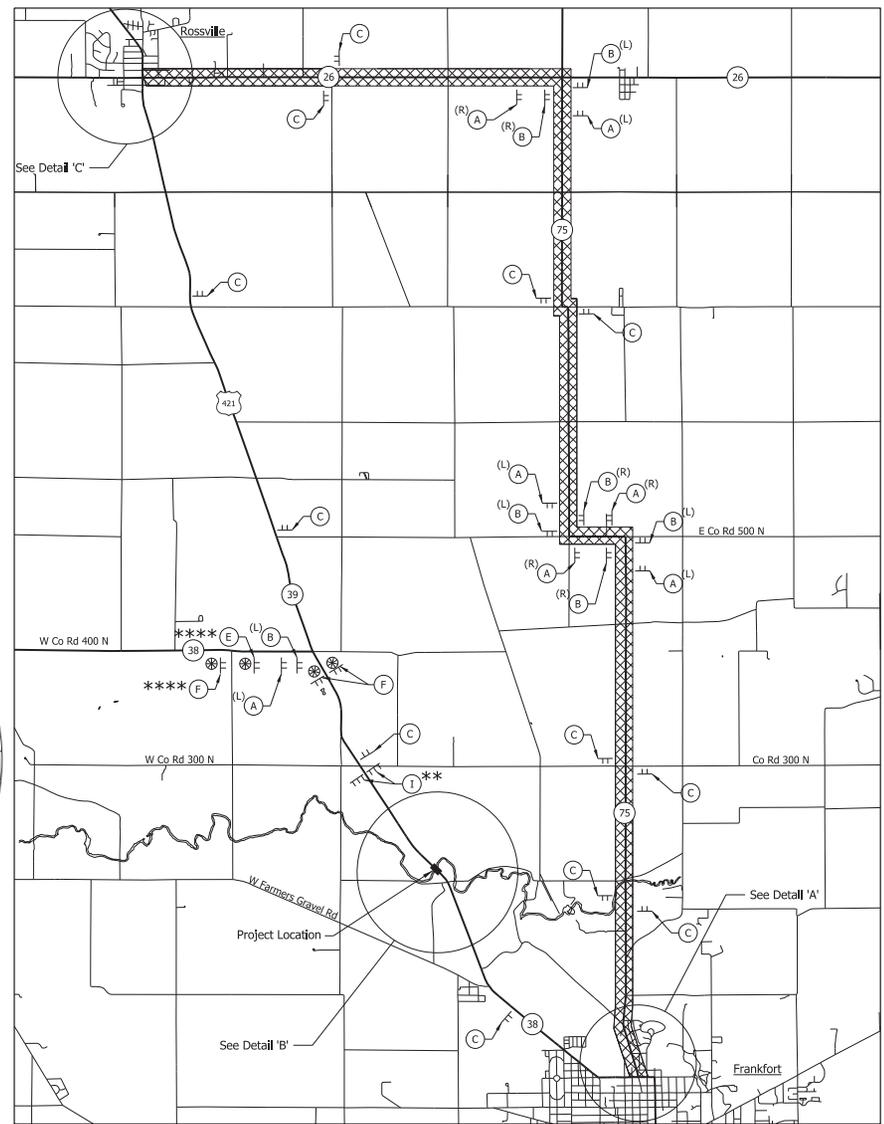
DETAIL 'A'
Not to Scale

LOCATION	SIGN MATERIAL COMPOST			
	SOLID YELLOW	SOLID WHITE	BROKEN YELLOW	BROKEN WHITE
LEFT	4 2%	4 1%	4 1%	4 1%
RIGHT	2%	2%	2%	2%

MAINTENANCE OF TRAFFIC QUANTITIES			
ITEM	UNITS	QUANTITY	TOTAL
CONSTRUCTION SIGN ASSEMBLY	EACH	21	21
CONSTRUCTION SIGN ASSEMBLY	EACH	2	2
ROAD CLOSED SIGN ASSEMBLY	EACH	2	2
DETOUR ROUTE MARKER ASSEMBLY	EACH	2	2
BARRICADE 12 A	LFT	16	16
BARRICADE 12 B	LFT	16	16

NOTES:

- Refer to INDOT Standard Drawing E 801-TCDT-01 for placement of signs and devices in a rural detour and E 801-TCDT-04 for Detour Route Marker Assembly Details.
- Two - "Route Number Closed On or After _____" Signs (XG20-5) to be placed as directed by the engineer prior to construction.
- Upon completion of the project restore the double yellow centerline and solid white edge lines.
- Install R11-2 Road Closure sign assemblies on Type III-A barricades. Install R11-3 Road Closure sign assemblies on Type III-B barricades.
- Conduct flagging during paving operations in accordance with E 801-TCTC-05.



DETOUR PLAN
SCALE: 1" = 5,000'

PLOT: 2/14/2020 10:20:57 AM By: bshahin Prc: Transportation2018

Z:\infra\2016\160355_12 - US 421 over S Fork Willk\CAD\Production Drawings\160355_12_BR_Detour_01.dgn



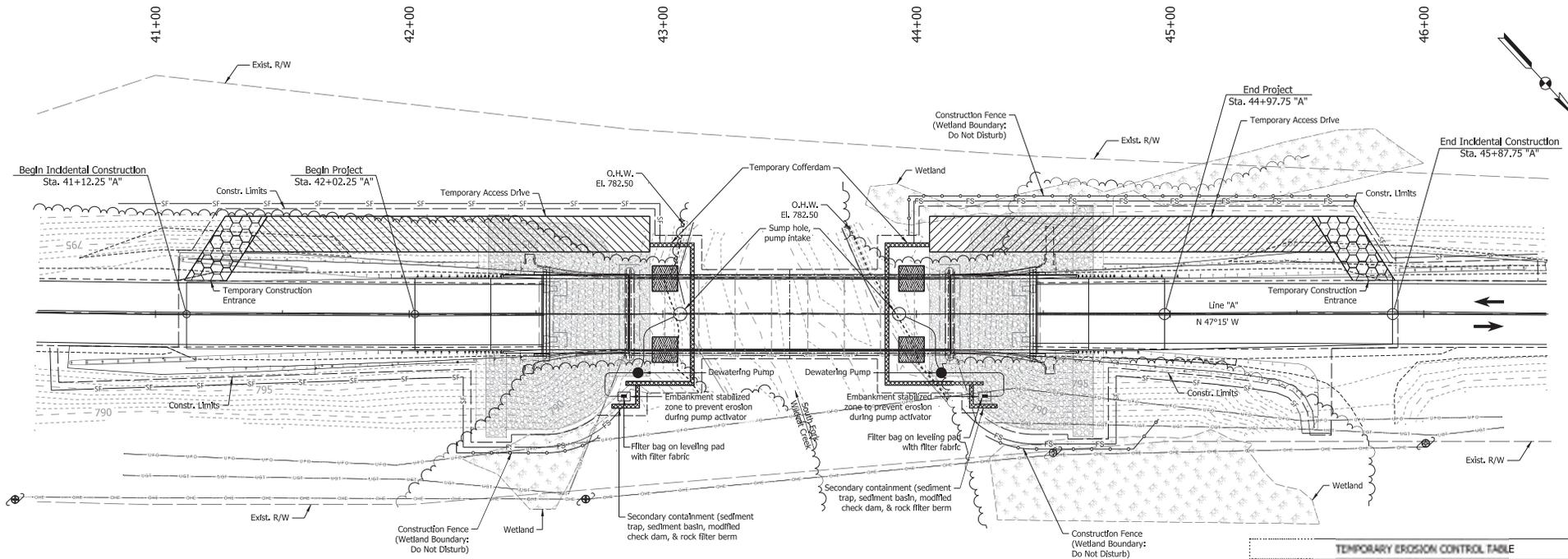
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
CHECKED: JSP	CHECKED: NRT	

INDIANA
DEPARTMENT OF TRANSPORTATION

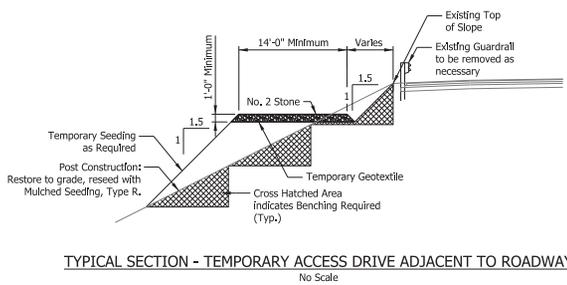
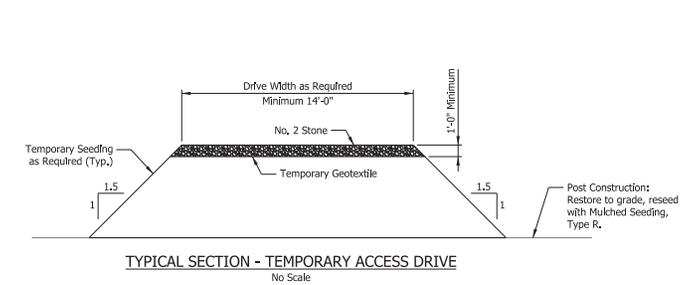
MAINTENANCE OF TRAFFIC

SCALE	BRIDGE FILE
AS NOTED	(42)399-1201792 C
	DESIGNATION
	1593276
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CONTRACT	PROJECT
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PLOT: 2/14/2020 10:21:16 AM By: bhonam Proc: Transportation.dwg



PLAN
 Scale: 1" = 20'-0"



SECTION	LOCATION		TEMPORARY SILT FENCE	FILTER SOCK	TEMPORARY SEEDING	TEMPORARY MULCHED	FERTILIZER	REMARKS
	LFT	RIGHT						
41+00		X	12					
42+00	3		12					
43+00	3		12					
44+00	3		12					
45+00	3		12					
46+00	3		12					
TOTAL			60	0	0	0	0.15	

NOTES

- Provide silt fence around the perimeter of construction and temporary staging areas.
- Provide Filter Sock at perimeter of bridge embankment construction adjacent to channel.
- Construct Stable Construction Entrances (Est. Qty. = 100 Tons of No. 2 Stone, 235 SYS Temporary Geotextile).
- Provide concrete washouts as required.
- No Causeways are permitted in the channel.
- For additional information regarding access roads, see Special Provisions.
- The construction access details show on this sheet were developed for permitting. If alternate methods are approved by the Engineer, the contractor shall be responsible for any modifications to design, details, permits, and any associated costs.
- Temporary Cofferdam shall be sheet pile or other method. Materials and shape vary depending on needs and availability. Cofferdam shall be 2' minimum high and extend 1' above the ordinary high water elevation.
- Construction fence to be placed adjacent to wetlands at perimeter of construction (See special provisions) Est. Qty, 300 Lft.

LEGEND

	SILT FENCE
	FILTER SOCK
	CONSTRUCTION FENCE

	ANTICIPATED LOCATION OF TEMPORARY SUPPORTS FOR JACKING AND SUPPORTING TRUSS.
	TEMPORARY ACCESS DRIVE
	TEMPORARY CONSTRUCTION ENTRANCE

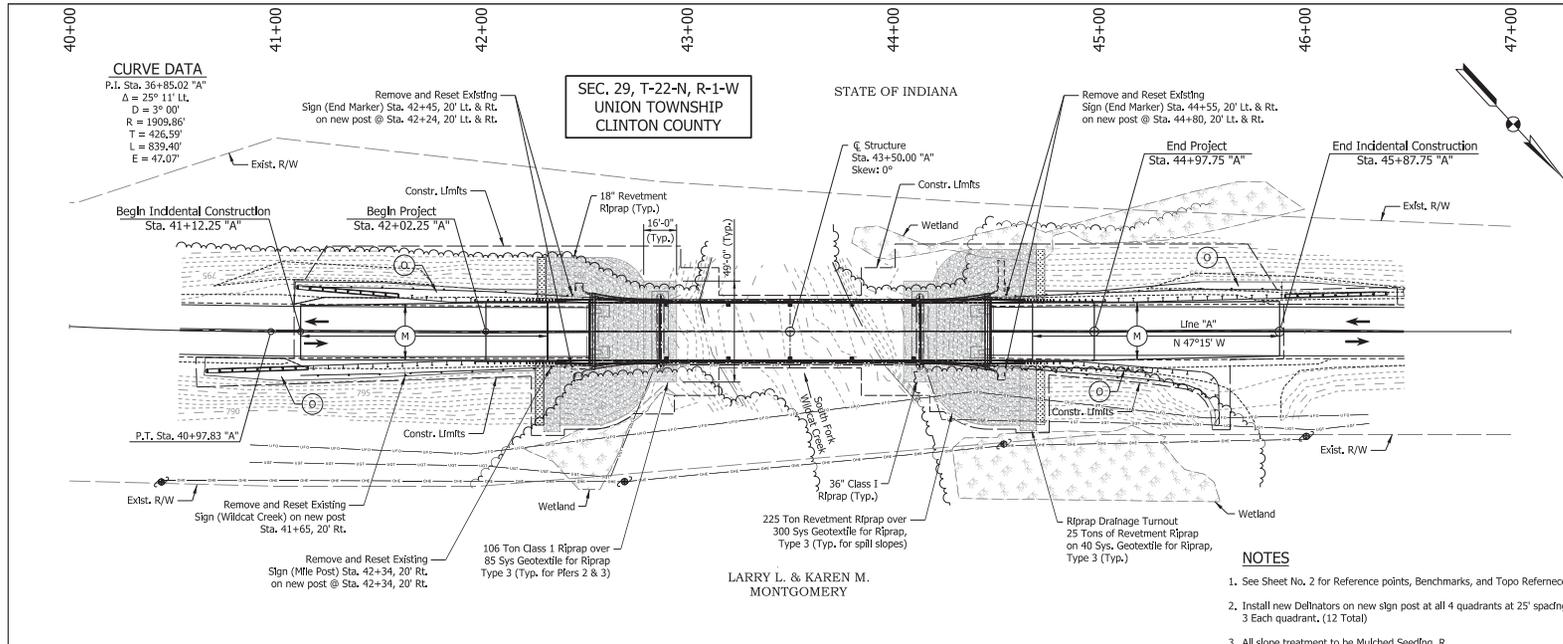


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
CHECKED: JMP	CHECKED: JMP	

INDIANA
 DEPARTMENT OF TRANSPORTATION

EROSION CONTROL PLAN

SCALE	BRIDGE FILE
AS NOTED	(42)399-2401792 C
	DESIGNATION
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CONTRACT	PROJECT
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EXISTING STRUCTURES
 The present structure is a steel thru truss with concrete cast-in-place girder end spans. It was built in 1941 with a 28'-0" clear roadway. The structure was rehabilitated in 1974 and 1985. The concrete end span superstructures are to be removed along with the concrete deck of the steel truss span.

EARTHWORK SUMMARY

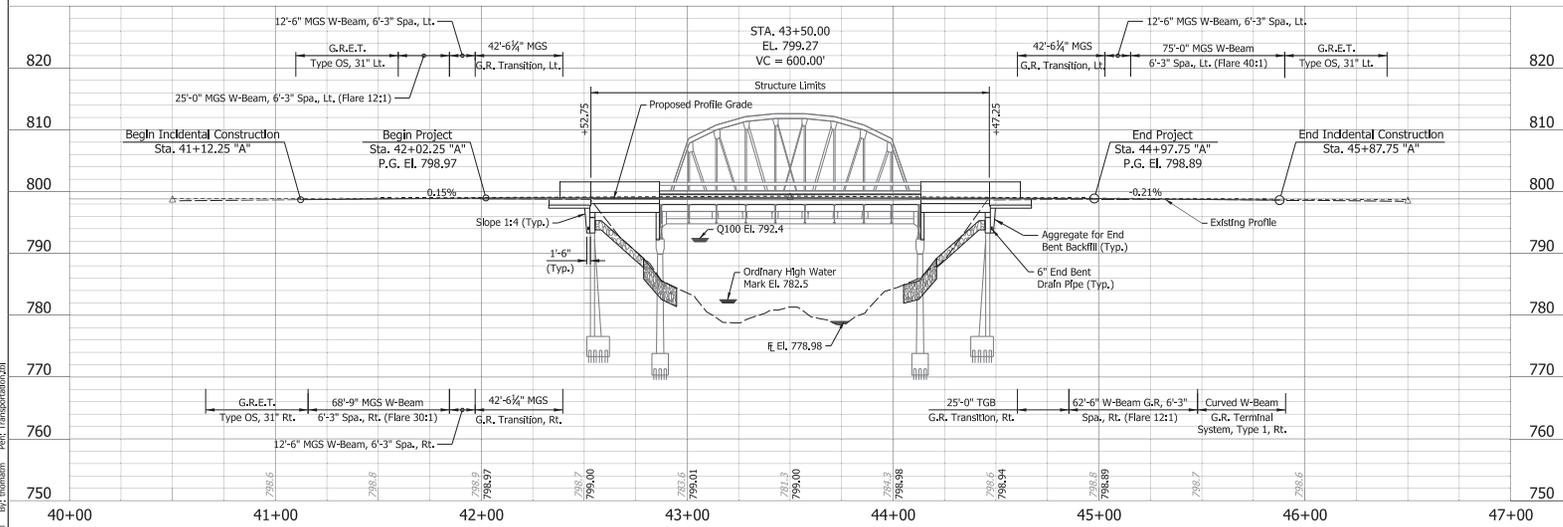
Common Excavation	170 Cys.
Excavation Foundation, Unclassified	20 Cys.
* Mulched Seeding	1000 Sys.

* Undistributed Estimated Quantity to be placed as directed by the Engineer

HYDRAULIC SCOUR DATA

Drainage Area =	76.0 sq.mf.
Design Discharge, Q100 =	9,050.0 cfs
Q100 Elevation =	792.4 ft.
Max. Velocity at Q100 =	7.11 ft/sec
Avg. Velocity at Q100 =	6.09 ft/sec
Scour Depth (Contraction) =	12.98 ft.
Scour Depth (Total) =	19.80 ft.
Low Scour Elevation =	759.18 ft.

- NOTES**
1. See Sheet No. 2 for Reference points, Benchmarks, and Topo References.
 2. Install new Delineators on new sign post at all 4 quadrants at 25' spacing, 3 Each quadrant. (12 Total)
 3. All slope treatment to be Mulched Seeding, R



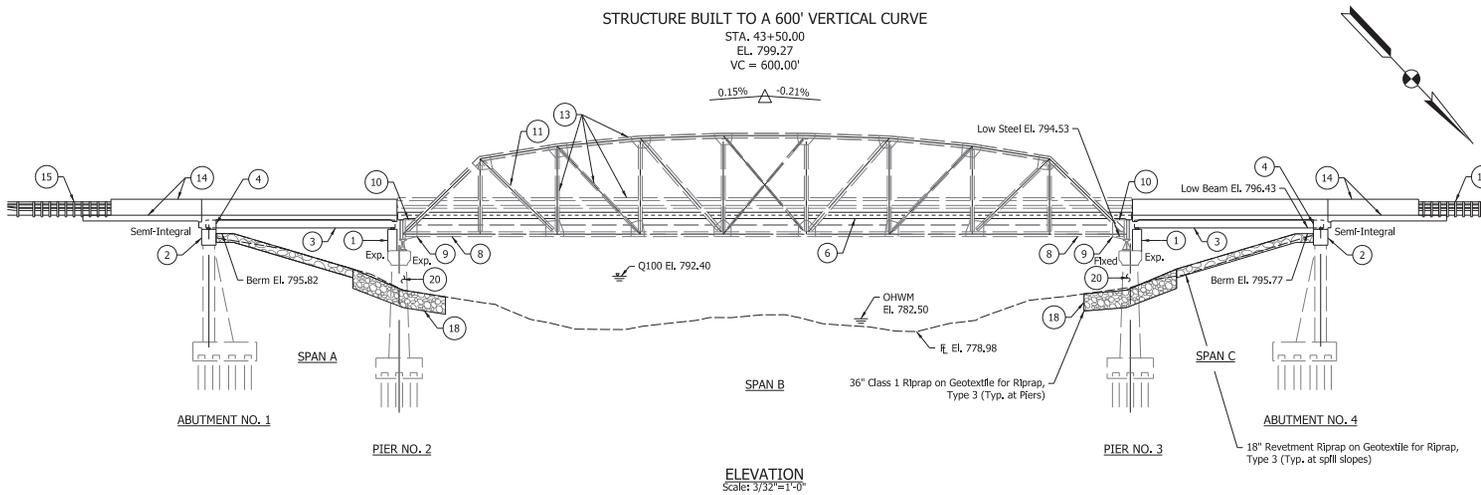
STEEL TRUSS BRIDGE WITH PRESTRESSED CONCRETE BOX BEAM END SPANS
 3 SPANS: 31'-8 1/2", 125'-0" & 31'-8 1/2"
 SKEW: SQUARE; 28'-0" CLEAR ROADWAY
 US 421 OVER SOUTH FORK WILDCAT CREEK
 CLINTON COUNTY

<p>LEGEND</p> <p>(M) See Sheet 7 for details</p> <p>(O) See Sheet 7 for details</p>		<p>INDIANA DEPARTMENT OF TRANSPORTATION</p>	HORIZONTAL SCALE	BRIDGE FILE
			<p>RECOMMENDED FOR APPROVAL _____</p> <p>DESIGN ENGINEER _____ DATE _____</p> <p>DESIGNED: NRT DRAWN: TMT</p> <p>CHECKED: JMP CHECKED: JMP</p>	<p>1"=30'-0" U/L</p> <p>VERTICAL SCALE</p> <p>1"=10'-0" U/L</p>
		<p>LAYOUT</p>	<p>SHEETS</p> <p>5 of 30</p>	
			<p>CONTRACT</p> <p>B-42017</p>	<p>PROJECT</p> <p>1593276</p>

STRUCTURE BUILT TO A 600' VERTICAL CURVE

STA. 43+50.00
EL. 799.27
VC = 600.00'

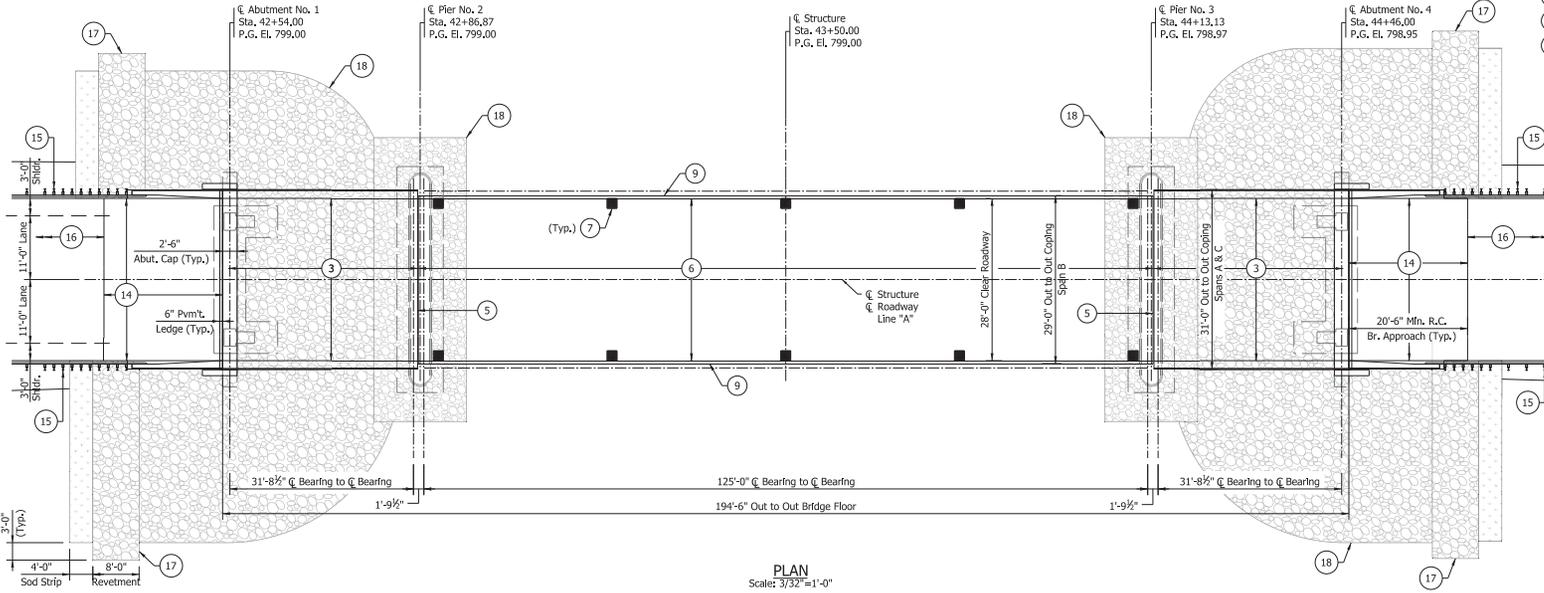
0.15% -0.21%



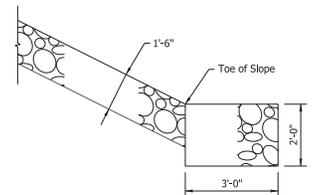
ELEVATION
Scale: 3/32"=1'-0"

BRIDGE REHABILITATION KEY

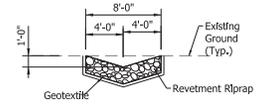
- 1 Replace reinforced concrete pier pedestals for spans A & C.
- 2 Replace Abutment Caps 1 & 4.
- 3 Replace the end spans with new prestressed concrete box beam superstructures, a new reinforced concrete deck, and new Type FC Concrete Railing.
- 4 Construct new semi-integral end bent diaphragms at abutments 1 & 4.
- 5 Install new pre-compressed foam joints.
- 6 Replace the existing reinforced concrete deck on the steel thru-truss main span.
- 7 Install new bridge deck drains, Type SQ-A.
- 8 Temporarily Jack and support Truss.
- 9 Temporarily Jack and support floor beam.
- 10 Remove and replace Gusset Plates.
- 11 Construct cover plate repair at Diagonal UB-L7 Y.
- 12 Replace deteriorated members or portions of members as directed by engineer following structural inspection during construction. (See Special Provisions)
- 13 Clean and paint the existing steel thru-truss, bearings and the attached existing metal guardrail.
- 14 Construct new Reinforced Concrete Bridge Approaches with Type TFC Concrete Bridge Railing Transitions.
- 15 Replace existing guardrail at all four bridge corners.
- 16 Mill and Resurface existing asphalt pavement as necessary to tie back into existing.
- 17 Construct Riprap Turnouts at the ends of the TFC Concrete Bridge Railing Transitions.
- 18 Add channel scour protection.
- 19 Surface Seal the deck, bridge rail, copings, approach slabs and bridge rail transitions.
- 20 Patch concrete structures as directed by the Engineer. (Approx. 100 SFT, each pier)
- 21 Remove and reset sign post and delineators at approaches. (See Layout for locations)



PLAN
Scale: 3/32"=1'-0"



RIPRAP REVETMENT TOE SECTION
Not to Scale



RIPRAP TURNOUT TYPICAL SECTION
Not to Scale

STEEL TRUSS BRIDGE WITH PRESTRESSED CONCRETE BOX BEAM END SPANS
3 SPANS: 31'-8 1/2", 125'-0" & 31'-8 1/2"
SKEW: SQUARE; 28'-0" CLEAR ROADWAY
US 421 OVER SOUTH FORK WILDCAT CREEK
CLINTON COUNTY

PLOT: 2/14/2020 10:46:05 AM
 By: bhobain Proj: Transportation.dwg
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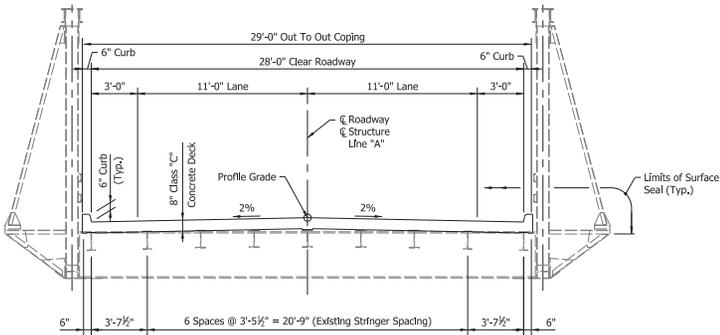


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
CHECKED: JMP	CHECKED: JMP	

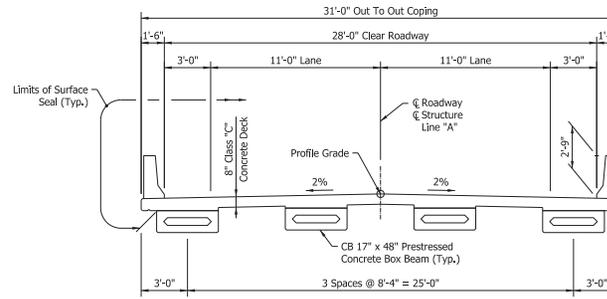
INDIANA
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN

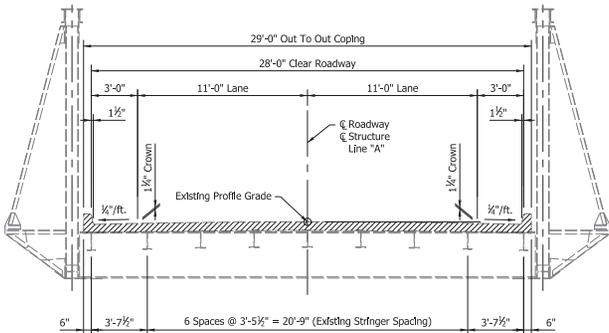
SCALE	BRIDGE FILE
AS NOTED	(421)399-1201792 C
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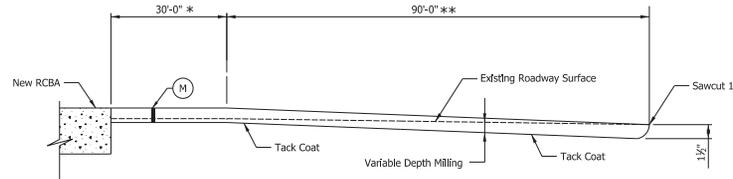
TYPICAL PROPOSED SECTION
SPAN "B"
Scale: 3/4" = 1'-0"



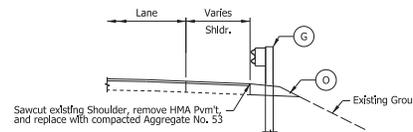
TYPICAL PROPOSED SECTION
SPANS "A" & "C"
Scale: 3/4" = 1'-0"



TYPICAL REMOVAL SECTION
SPAN "B"
Scale: 3/4" = 1'-0"



HMA WEDGE AND LEVEL DETAIL
Not to Scale



GUARDRAIL SECTION
Applicable where new guardrail posts fall within existing shoulder footprint

GENERAL NOTES

Reinforcing steel cover shall be 2 1/2" in top and 1" minimum in bottom of floor slab, and 2" in all other parts, unless noted otherwise.

Plans for the existing structure are on file in the central office of the Indiana Department of Transportation as bridge file (421)39-12-01792 A, and (421)39-12-01792 B and are available upon request.

Where new work is to be fitted to old work, the contractor shall check all dimensions and conditions in the field, report any errors or discrepancies to the engineer and assume responsibility for their correctness and the fit of the new part to the old.

DESIGN DATA

New Superstructure and deck designed for HL-93 loading in accordance with AASHTO LRFD Bridge Design Specifications Eighth Edition and Interims through 2019.

DEAD LOAD

Actual weight plus 35 psf (composite) for future wearing surface and 15 (non-composite) for permanent metal deck forms (New Spans Only).

FLOOR SLAB

Designed with a 7 1/2" structural depth plus a 1/2" sacrificial wearing surface.

DESIGN STRESSES

CONCRETE

Class "A" Concrete: $f_c = 3,500$ psi
Class "C" Concrete: $f_c = 4,000$ psi

REINFORCING STEEL

Grade 60 $F_y = 60,000$ psi

CONSTRUCTION LOADING

The exterior beam has been checked for strength, deflection, and overturning using the construction loads shown below. Cantilever overhang brackets were assumed for support of the deck overhang past the edge of the exterior beam. Finishing machine was assumed to be supported 6 in. outside the vertical coping form. The top overhang brackets were assumed to be located 6 in. past the edge of the vertical coping form. The bottom of overhang brackets were assumed to be braced against the Box Beam Superstructure (New Spans Only).

DECK FALSEWORK LOADS

Designed for 15 lb/ft² for permanent metal stay-in-place deck forms, removable deck forms, and 2-ft exterior walkways (New Spans Only).

CONSTRUCTION LIVE LOAD

Designed for 20 lb/ft² extending 2 ft past the edge of coping and 75 lb/ft vertical force applied at a distance of 6 in. outside the face of coping over a 30-ft length of the deck centered with the finishing machine (New Spans Only).

FINISHING MACHINE LOAD

4500 lb distributed over 10 ft along the coping (New Spans Only).

WIND LOAD

Designed for 70 mph horizontal wind loading in accordance with LRFD 3.8.1 (New Spans Only).

STEEL TRUSS BRIDGE WITH PRESTRESSED CONCRETE BOX BEAM END SPANS
3 SPANS: 31'-8 1/2", 125'-0" & 31'-8 1/2"
SKEW: SQUARE; 28'-0" CLEAR ROADWAY
US 421 OVER SOUTH FORK WILDCAT CREEK
CLINTON COUNTY

PLOT: 2/14/2020 10:21:27 AM By: bhonam Per: Transportation.jul

LEGEND

- (G) MGS Guardrail
- (M) Transition Milling and 165#(Syn. QC/QA-HMA, 3, 64, Surface, 9.5 mm
- (O) Compacted Aggregate No. 53 for Shoulders

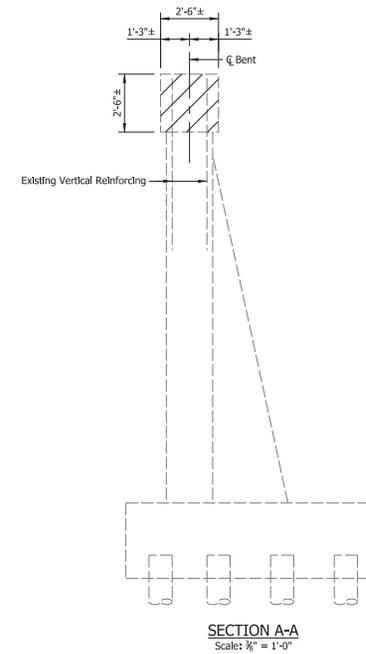
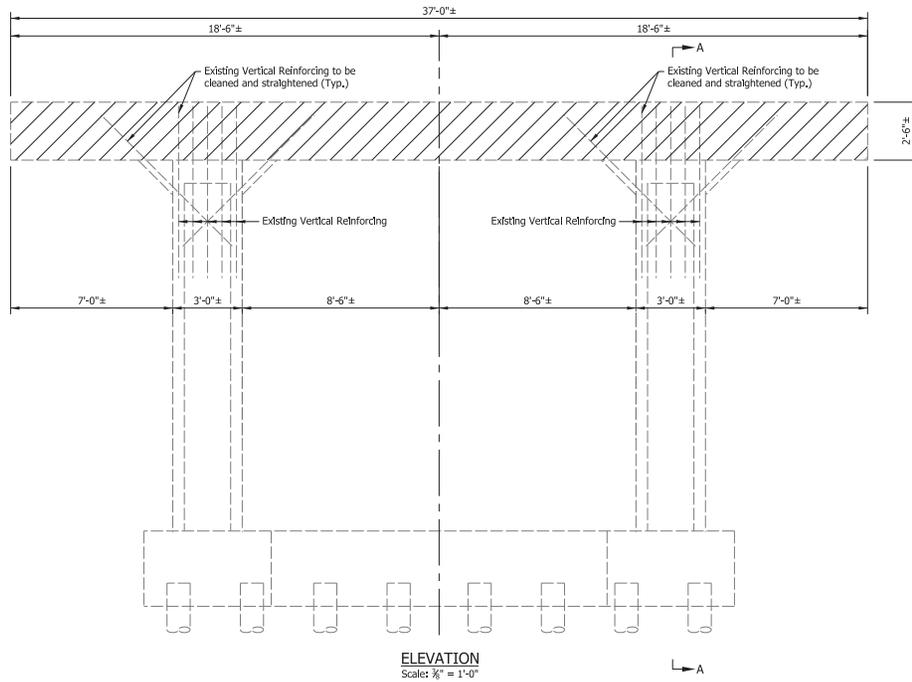
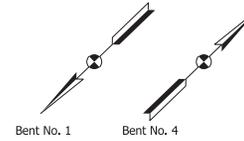
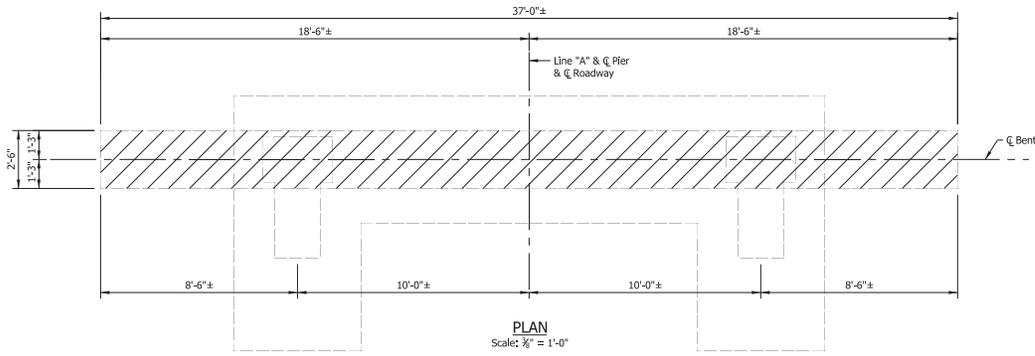


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
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CHECKED: JMP	CHECKED: JMP	

INDIANA
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN

SCALE	BRIDGE FILE
AS NOTED	(421)39-12-01792 C
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CONTRACT	PROJECT
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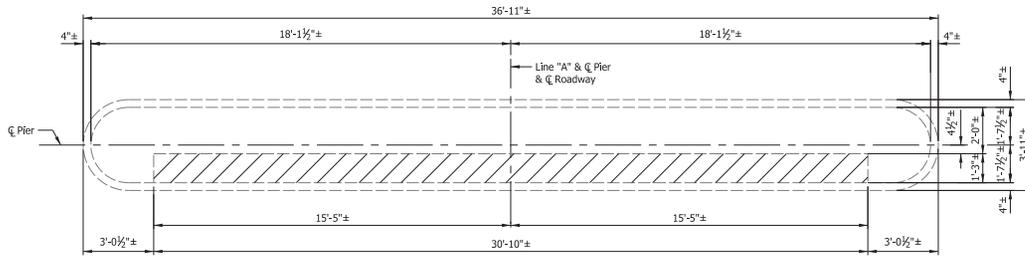


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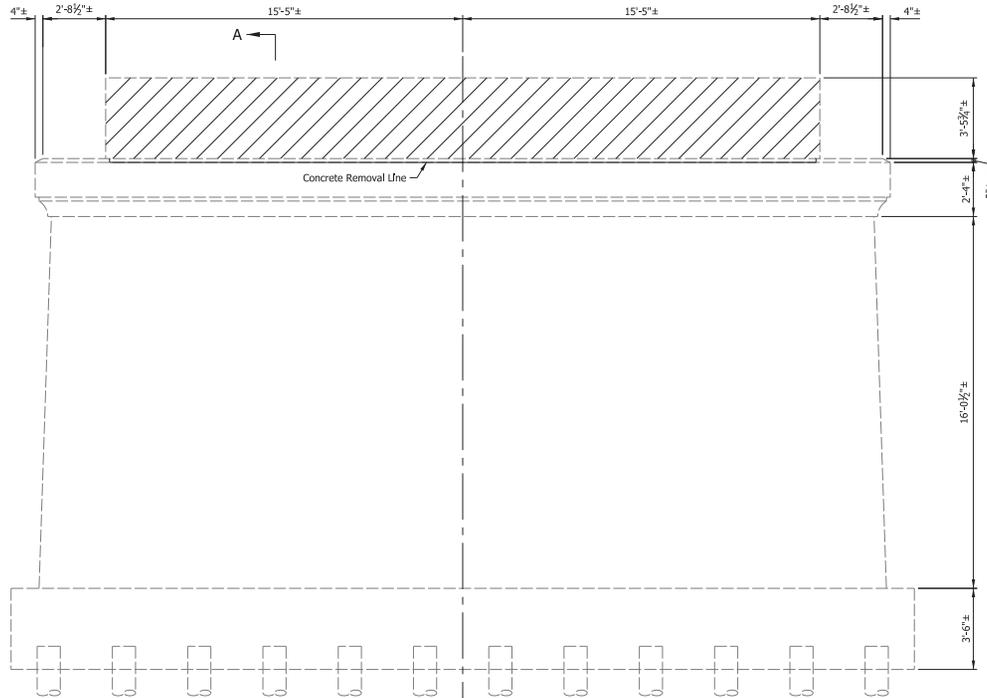
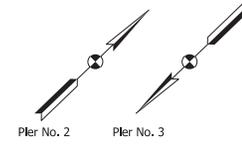
INDIANA
DEPARTMENT OF TRANSPORTATION

BENTS NO. 1 & NO. 4
REMOVAL DETAILS

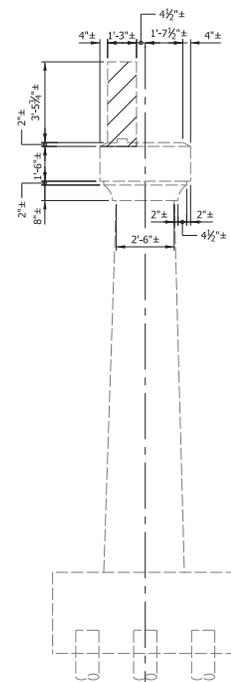
SCALE	BRIDGE FILE
AS NOTED	(421)39-1201792 C
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PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"



SECTION A-A
Scale: 1/8" = 1'-0"

PLOT: 2/14/2020 10:21:21 AM By: bhonain Proj: Transportation.dwg

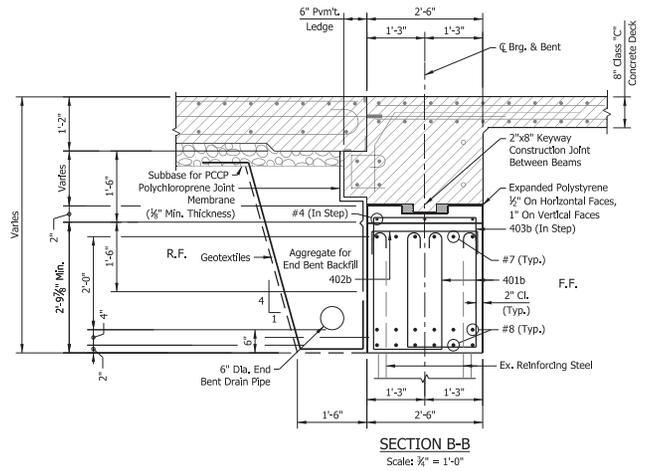
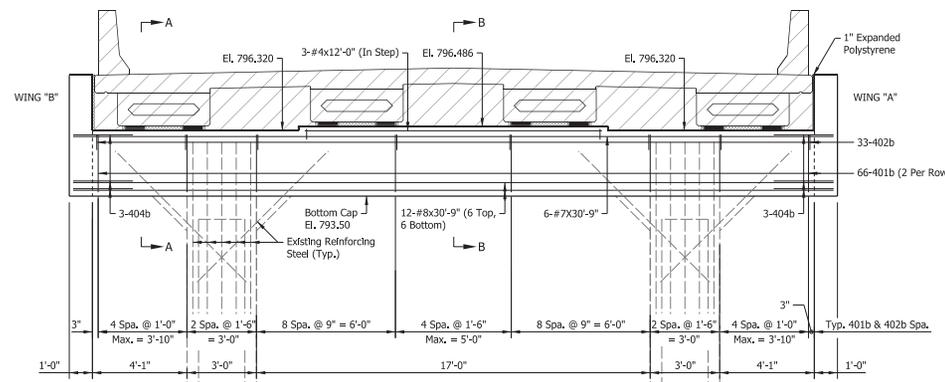
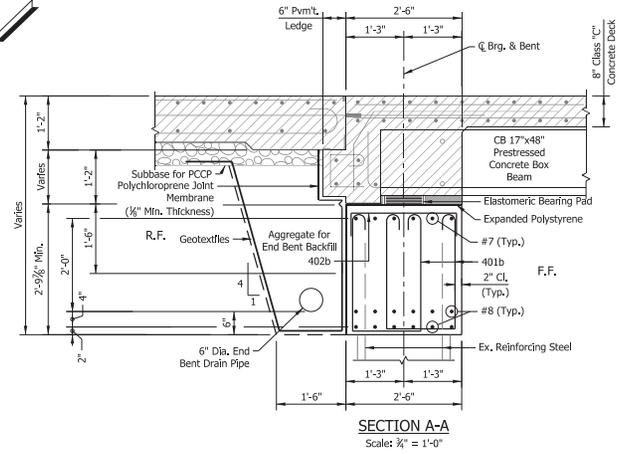
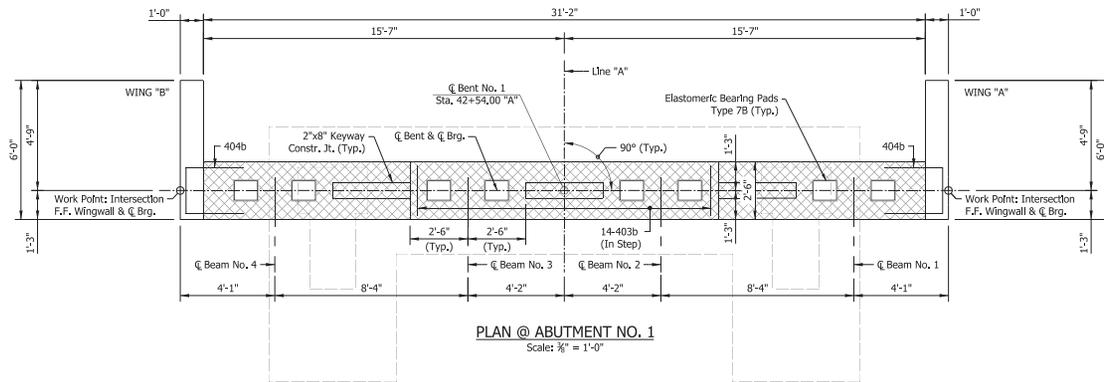


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
CHECKED: JMP	CHECKED: JMP	

INDIANA
DEPARTMENT OF TRANSPORTATION

PIERS NO. 2 & NO. 3
REMOVAL DETAILS

SCALE	BRIDGE FILE
AS NOTED	(421)39-1201792 C
	DESIGNATION
	1593276
	SHEETS
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CONTRACT	PROJECT
B-42017	1593276



NOTES

- Where new work is fitted to old work, the Contractor shall check all dimensions and conditions in the field, report all errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of the new part to the old.
- For Reinforcing Bar Notes, see Standard Drawing E703-BRST-01.
- All reinforcing steel to be epoxy coated.
- Hatched area to be poured with superstructure.
- Cross-Hatched areas indicate limits of Expanded Polystyrene cut out to clear elastomeric bearing pads by 1/2" on all sides. For additional detail and treatment of keyway construction joint, see Section B-B.
- For Elastomeric Bearing Pad Details, see Std Drawing No. E 726-BEBP-01.
- Surface Seal all exposed surfaces of wings.
- For additional details and Bill of Materials, see Sheet No. 11.
- For end bent backfill limits and drain pipe details, see Standard Drawing E211-BFIL-04.
- Epoxy coat existing reinforcing that is incorporated into new concrete.

ELEVATION @ ABUTMENT NO. 1
Scale: 1/8" = 1'-0"

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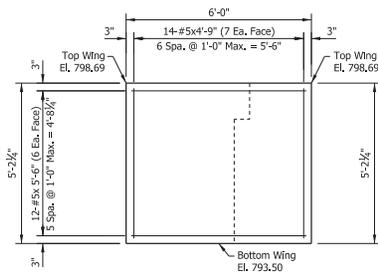


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: KMP	DRAWN: TMT	
CHECKED: TDJ	CHECKED: KMP	

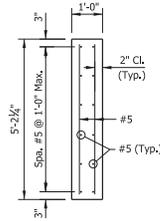
INDIANA
DEPARTMENT OF TRANSPORTATION

ABUTMENT NO. 1 DETAILS

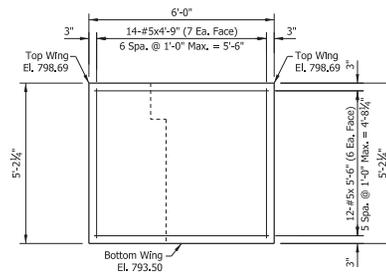
SCALE	BRIDGE FILE
AS NOTED	(42)39-1201792 C
	DESIGNATION
	1593276
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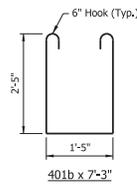
ELEVATION @ WING "B"
Scale: 1/2" = 1'-0"



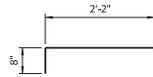
TYPICAL WINGWALL SECTION
Scale: 1/2" = 1'-0"



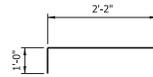
ELEVATION @ WING "A"
Scale: 1/2" = 1'-0"



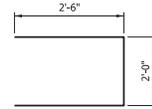
401b x 7'-3"



402b x 3'-6"



403b x 4'-2"



404b x 7'-0"

NOTES

1. Where new work is fitted to old work, the Contractor shall check all dimensions and conditions in the field, report all errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of the new part to the old.
2. For Reinforcing Bar Notes, see Std. Dwg. E 703-BRST-01.
3. All reinforcing bars shall be Epoxy Coated.
4. Epoxy coat existing reinforcing that is Incorporated Into new concrete.
5. Surface Seal all exposed surfaces of wings.

BILL OF MATERIALS			
ABUTMENT NO. 1			
SPOT COATED REINFORCING STEEL			
Size & Mark	Number of Bars	Length (ft.)	Weight (lbs.)
#8	12	30'-0"	
TOTAL #8 BARS			562
#7	3	30'-0"	
TOTAL #7 BARS			377
#5	24	9'-4"	
#5	28	4'-0"	
TOTAL #5 BARS			276
#10	66	7'-0"	
#10	33	2'-4"	
#10	14	5'-2"	
#10	6	7'-0"	
TOTAL #10 BARS			466
TOTAL EPOXY COATING REIN.			2,163
CONCRETE			
CLASS "A" IN SUBSTRUCTURE			10.7 CYS.
MISCELLANEOUS			
ASLT FOR END BENT BACKFILL			10 CYS.
GEOTEXTILE FOR UNDERDRAIN TYPE 3			30 SF'S
EPE, END BENT, 20x12, 5 IN.			51 LFT

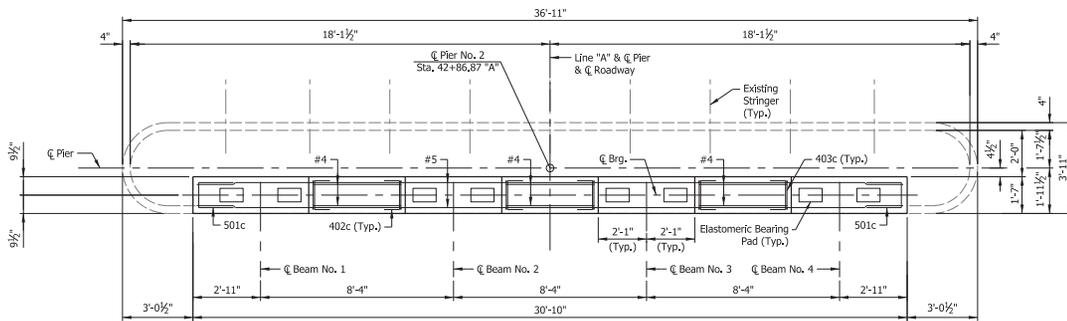


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: KMP	DRAWN: TMT	
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INDIANA
DEPARTMENT OF TRANSPORTATION

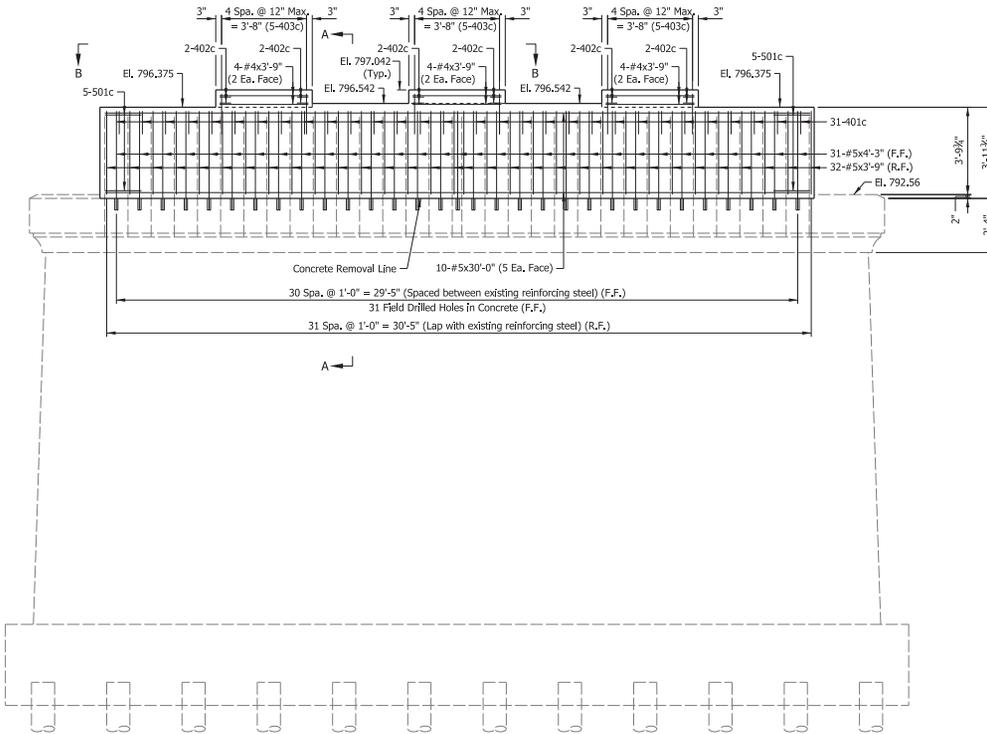
ABUTMENT NO. 1 DETAILS

SCALE	BRIDGE FILE
AS NOTED	(42)399-1201792 C
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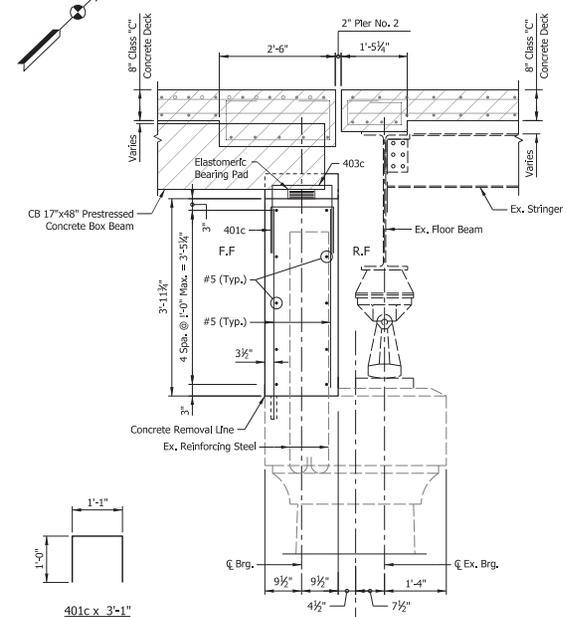
PLAN @ PIER NO. 2

Scale: 1/8" = 1'-0"



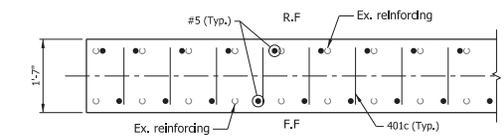
ELEVATION @ PIER NO. 2

Scale: 1/8" = 1'-0"



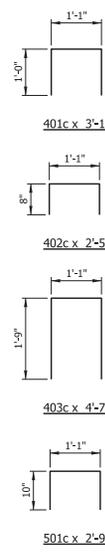
SECTION A-A

Scale: 1/4" = 1'-0"



VIEW B-B

Scale: 1/2" = 1'-0"



BILL OF MATERIALS			
PIER NO. 2			
SPQR	QUANTITY	REINFORCING STEEL	WEIGHT
Size & Mark	Number of Bars	(#, L, S, etc.)	(Lbs.)
501c	10	2'-9"	
#5	33	3'-0"	
#5	11	6'-0"	
#5	12	7'-0"	
TOTAL STEEL BARS			600
TOTAL #4 BARS			730
TOTAL EPOXY COATED BARS			730
CONCRETE			
CLASS 'A' IN SUBSTRUCTURE			7.2 CYC
MISCELLANEOUS			
SURFACE SEAL			250 SFT
FIELD DRILLED HOLES IN CONCRETE			31 EACH

NOTES

- Where new work is fitted to old work, the Contractor shall check all dimensions and conditions in the field, report all errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of the new part to the old.
- Intentionally Roughen Existing Concrete 1/2" where it meets new concrete.
- For Reinforcing Bar Notes, see Standard Drawing E703-BRST-01.
- All reinforcing steel to be epoxy coated.
- Field drilled holes in concrete shall extend to a depth required to embed a #5 bar 6" minimum with an approved anchor system having a minimum pullout equal to 18,600 Lbs. Existing Pier Cap Reinforcing shall not be cut during installation of anchors.
- For Elastic Bearing Pad Details, see sheet 21.
- Surface Seal the top and vertical surfaces of pier cap.
- Install embedded galvanize anodes (EGA) on alternating reinforcing bars at interface of new concrete to old in new beam seat construction. Install EGAs on exposed reinforcing within locations of pier patches as directed by the engineer.

PIER 2 (1/4/2020) 10:21:51 AM BJC:khonam Proj: Transportation.dwg

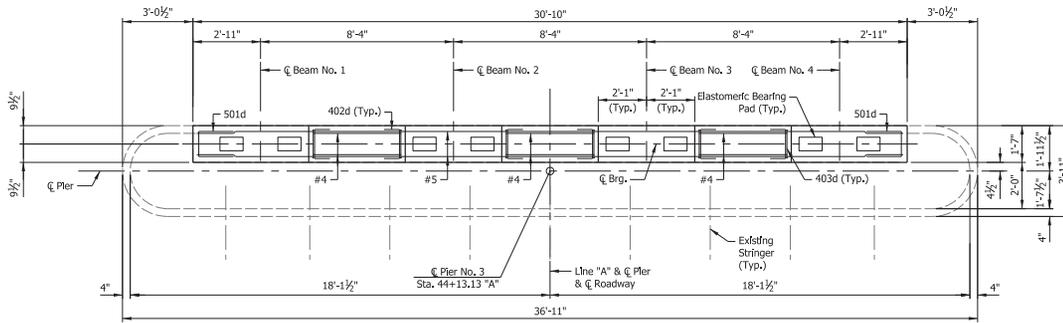


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
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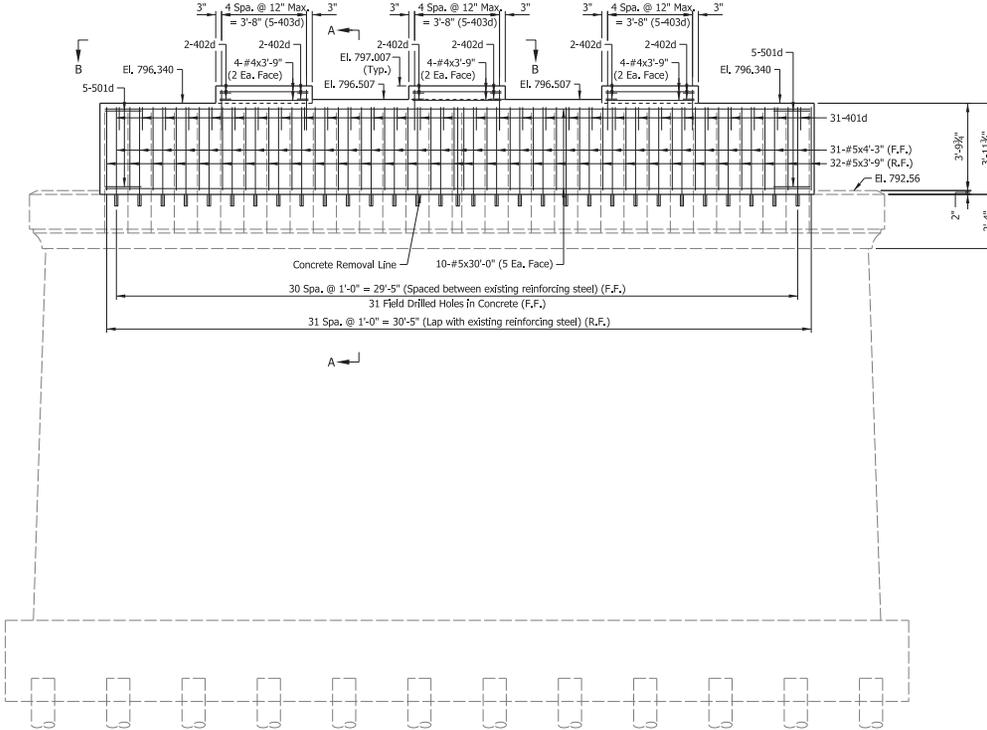
INDIANA DEPARTMENT OF TRANSPORTATION

PIER NO. 2 DETAILS

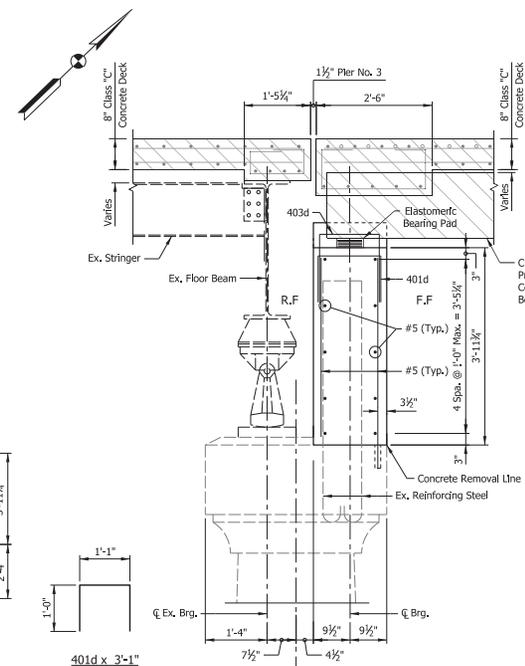
SCALE	BRIDGE FILE
AS NOTED	(42)399-1201792 C
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	1593276
	SHEETS
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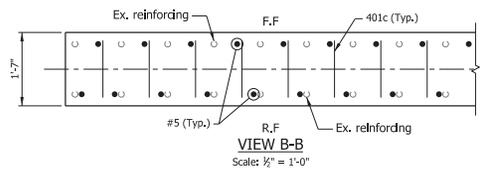
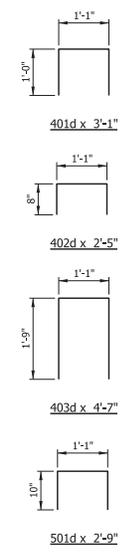
PLAN @ PIER NO. 3
Scale: 1/2" = 1'-0"



ELEVATION @ PIER NO. 3
Scale: 1/2" = 1'-0"



SECTION A-A
Scale: 1/2" = 1'-0"



VIEW B-B
Scale: 1/2" = 1'-0"

BILL OF MATERIALS			
PIER NO. 3			
SPQR	QUANTITY	ALLOWING FOR WASTE	FEED
Size & Mark	Number of Bars	Length (ft. - in.)	Weight (lbs.)
501d	10	2'-0"	
#5	33	30'-0"	
#5	11	6'-0"	
#5	12	2'-0"	
#5	15	6'-0"	
TOTAL STEEL BARS			600
TOTAL #4 BARS			730
TOTAL EPOXY COATED BARS			730
CONCRETE			
CLASS 'A' IN SUBSTRUCTURE			7.8 CYC
MISCELLANEOUS			
SURFACE SEAL			250 SFT
FIELD DRILLED HOLES IN CONCRETE			31 EACH

NOTES

- Where new work is fitted to old work, the Contractor shall check all dimensions and conditions in the field, report all errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of the new part to the old.
- Intentionally Roughen Existing Concrete 1/4" where it meets new concrete.
- For Reinforcing Bar Notes, see Standard Drawing E703-BRST-01.
- All reinforcing steel to be epoxy coated.
- Field drilled holes in concrete shall extend to a depth required to embed a #5 bar 6" minimum with an approved anchor system having a minimum pullout equal to 18,600 Lbs. Existing Pier Cap Reinforcing shall not be cut during installation of anchors.
- For Elastomeric Bearing Pad Details, see sheet 21.
- Surface Seal the top and vertical surfaces of pier cap.
- Install embedded galvanize anodes (EGA) on alternating reinforcing bars at interface of new concrete to old in new beam seat construction. Install EGAs on exposed reinforcing within locations of pier patches as directed by the engineer.

PLOT: 2/14/2020 10:21:56 AM By: bhonam Per: Transportation.dtl
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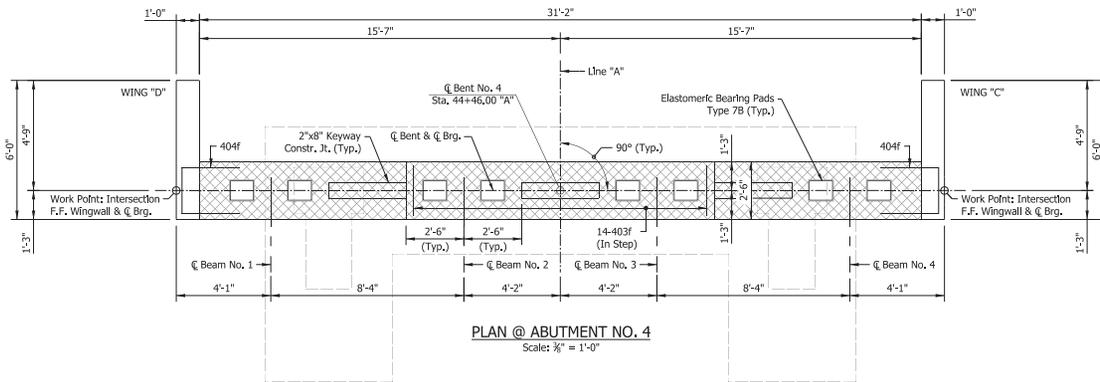


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: NRT	DRAWN: TMT	
CHECKED: JMP	CHECKED: JMP	

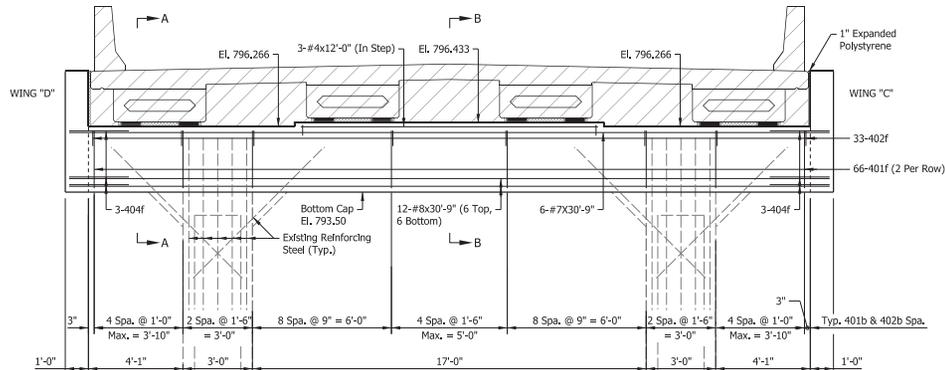
INDIANA
DEPARTMENT OF TRANSPORTATION

PIER NO. 3 DETAILS

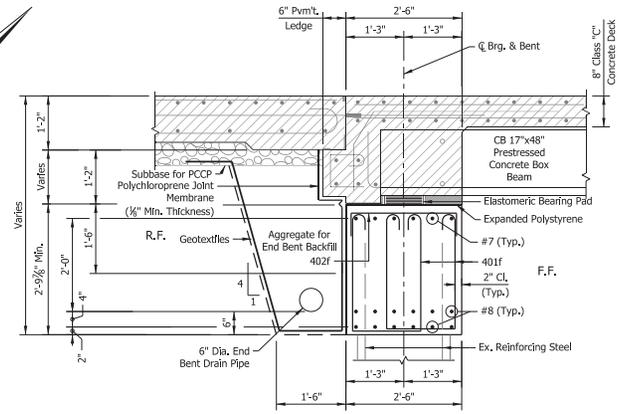
SCALE	BRIDGE FILE
AS NOTED	(42)39-1201792 C
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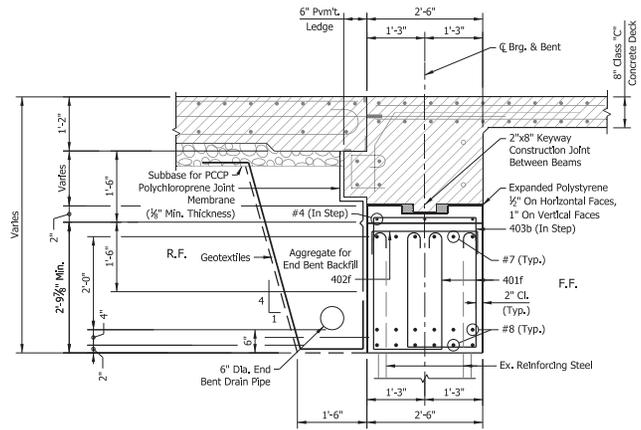
PLAN @ ABUTMENT NO. 4
Scale: 1/8" = 1'-0"



ELEVATION @ ABUTMENT NO. 4
Scale: 1/8" = 1'-0"



SECTION A-A
Scale: 1/8" = 1'-0"



SECTION B-B
Scale: 1/8" = 1'-0"

NOTES

- Where new work is fitted to old work, the Contractor shall check all dimensions and conditions in the field, report all errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of the new part to the old.
- For Reinforcing Bar Notes, see Standard Drawing E703-BRST-01.
- All reinforcing steel to be epoxy coated.
- Hatched area to be poured with superstructure.
- Cross-Hatched areas indicate limits of Expanded Polystyrene cut out to clear elastomeric bearing pads by 1/2" on all sides. For additional detail and treatment of keyway construction joint, see Section B-B.
- For Elastomeric Bearing Pad Details, see Std Drawing No. E 726-BEBP-01.
- Surface Seal all exposed surfaces of wings.
- For additional details and Bill of Materials, see Sheet No. 15.
- For end bent backfill limits and drain pipe details, see Standard Drawing E211-BFIL-04.
- Epoxy coat existing reinforcing that is incorporated into new concrete.

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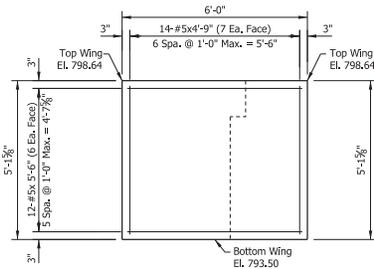


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
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CHECKED: TDJ	CHECKED: KMP	

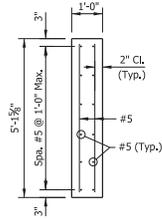
INDIANA
DEPARTMENT OF TRANSPORTATION

ABUTMENT NO. 4 DETAILS

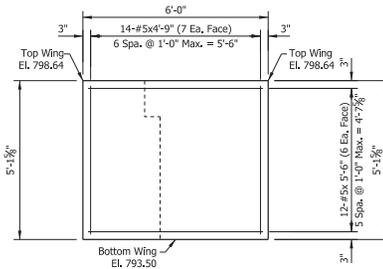
SCALE	BRIDGE FILE
AS NOTED	(42)399-12-01792 C
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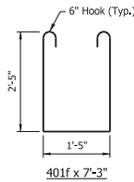
ELEVATION @ WING "D"
Scale: 1/2" = 1'-0"



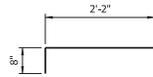
TYPICAL WINGWALL SECTION
Scale: 1/2" = 1'-0"



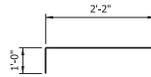
ELEVATION @ WING "C"
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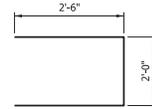
401f x 7'-3"



402f x 3'-6"



403f x 4'-2"



404f x 7'-0"

BILL OF MATERIALS			
ABUTMENT NO. 4			
SPOT-CASTED REINFORCING STEEL			
Size & Mark	Number of Bars	Length (ft.)	Weight (lbs.)
#8	12	30'-0"	
TOTAL #8 BARS			565
#7	3	30'-0"	
TOTAL #7 BARS			375
#5	24	5'-4"	
#5	28	4'-0"	
TOTAL #5 BARS			276
#04	66	7'-3"	
#02	33	7'-4"	
#03	14	5'-3"	
#04	6	7'-0"	
TOTAL #4 BARS			466
TOTAL EPOXY COATING REIN.			2,163
CONCRETE			
CLASS "A" IN SUBSTRUCTURE			10.5 CYS
MISCELLANEOUS			
ASG FOR END BENT BACKFILL			10 CYS
GEOTEXTILE FOR UNDERDRAIN TYPE 3			30 SF
EPE, END BENT, 20x16, 5 IN.			51 LFT

NOTES

1. Where new work is fitted to old work, the Contractor shall check all dimensions and conditions in the field, report all errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of the new part to the old.
2. For Reinforcing Bar Notes, see Std. Dwg. E 703-BRST-01.
3. All reinforcing bars shall be Epoxy Coated.
4. Epoxy coat existing reinforcing that is Incorporated Into new concrete.
5. Surface Seal all exposed surfaces of wings.

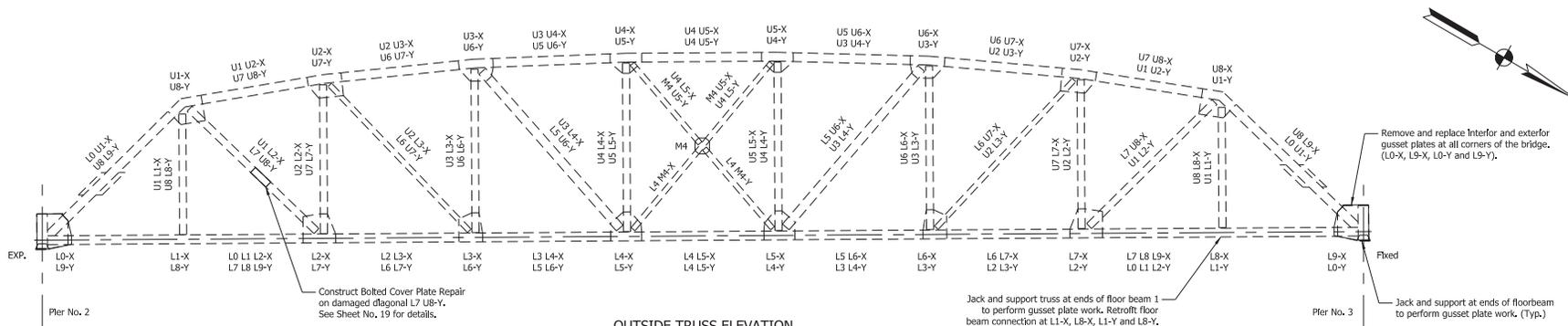


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: KMP	DRAWN: TMT	
CHECKED: TDJ	CHECKED: KMP	

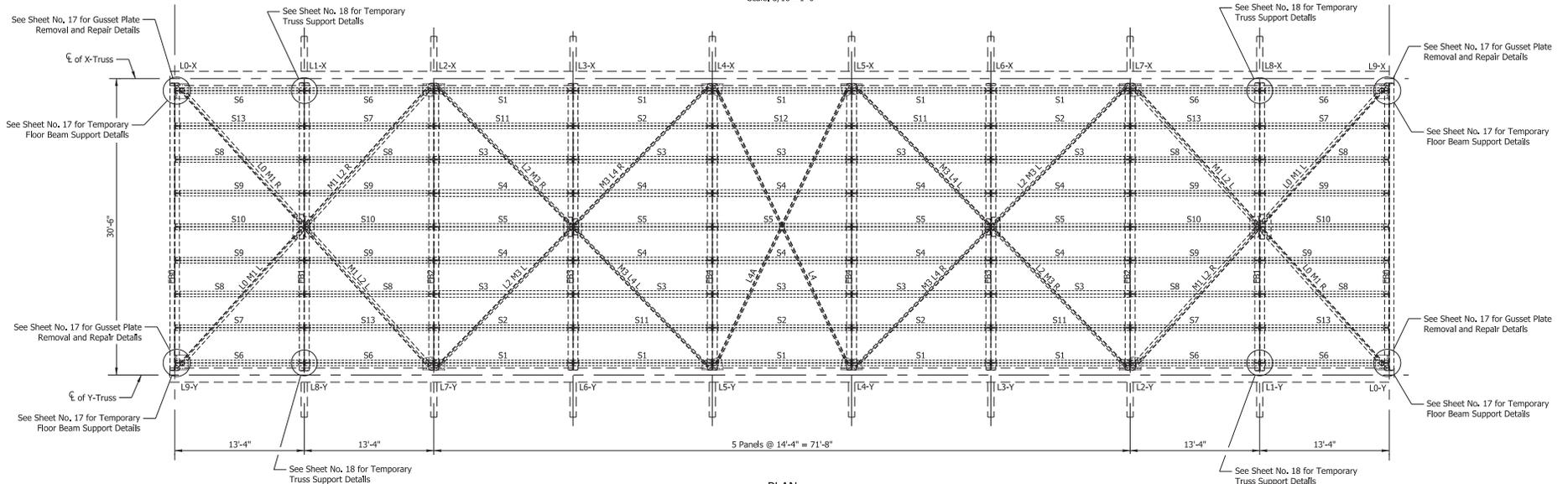
INDIANA
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ABUTMENT NO. 4 DETAILS

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OUTSIDE TRUSS ELEVATION
X-TRUSS - FAR SIDE (DOWNSTREAM SIDE)
Y-TRUSS - NEAR SIDE (UPSTREAM SIDE)
 Scale: 3/16"=1'-0"



PLAN
 Scale: 3/16"=1'-0"

- NOTES**
- For additional Truss details see archived std. superstructure details, drawing std. No. 1532 dated May 26, 1939 and revised Nov. 12, 1940.
 - Replace deteriorated members or portions of members as directed by the Engineer following structural inspection during construction. See Spedal Provisions.

PLOT: 2/14/2020 10:21:55 AM By: thomasm Per: Transportation.jul



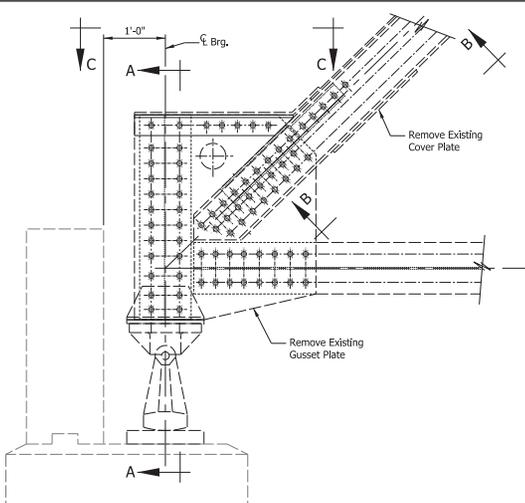
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: JAS	DRAWN: TMT	
CHECKED: JAMP	CHECKED: JAMP	

INDIANA DEPARTMENT OF TRANSPORTATION

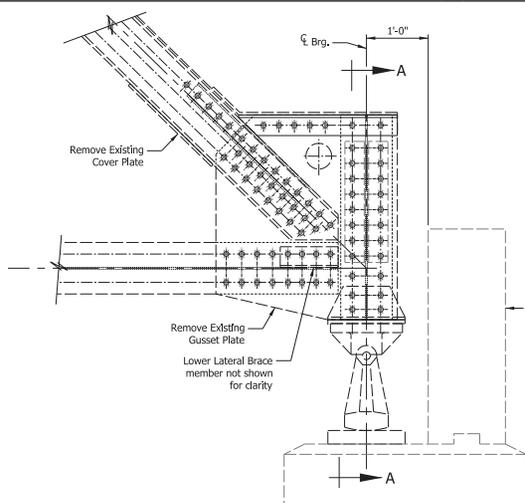
STEEL TRUSS DETAILS

SCALE	BRIDGE FILE
AS NOTED	(42)39-1201792 C
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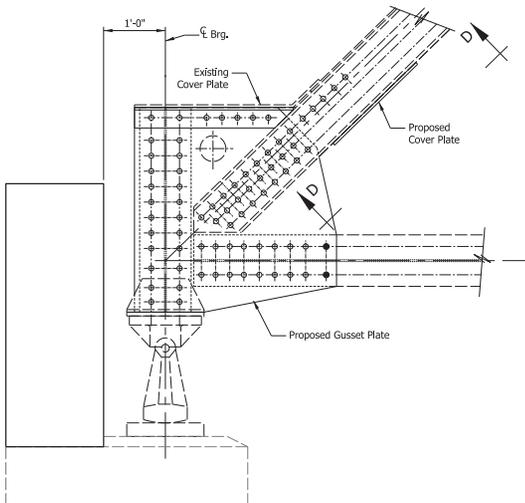
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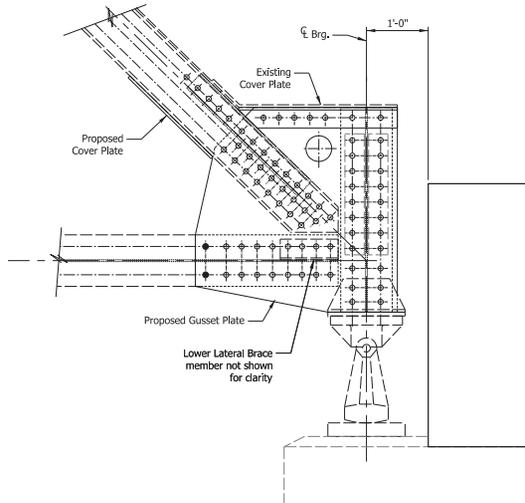
EXISTING OUTSIDE GUSSET PLATE ELEVATION
 (L9-Y SHOWN, L9-X SAME
 L0-Y AND L0-X SIMILAR BY OPPOSITE HAND)
 Scale: 1"=1'-0"



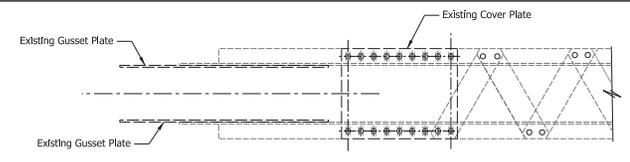
EXISTING INSIDE GUSSET PLATE ELEVATION
 (L9-Y SHOWN, L9-X SAME
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 Scale: 1"=1'-0"



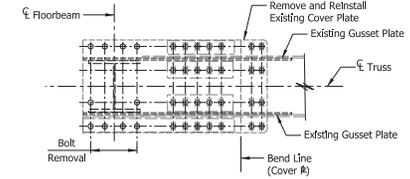
PROPOSED OUTSIDE GUSSET PLATE ELEVATION
 (L9-Y SHOWN, L9-X SAME
 L0-Y AND L0-X SIMILAR BY OPPOSITE HAND)
 Scale: 1"=1'-0"



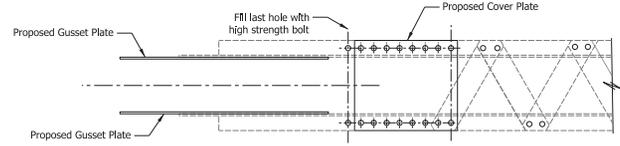
PROPOSED INSIDE GUSSET PLATE ELEVATION
 (L9-Y SHOWN, L9-X SAME
 L0-Y AND L0-X SIMILAR BY OPPOSITE HAND)
 Scale: 1"=1'-0"



SECTION "B-B"
 Scale: 1"=1'-0"



SECTION "C-C"
 Scale: 1"=1'-0"



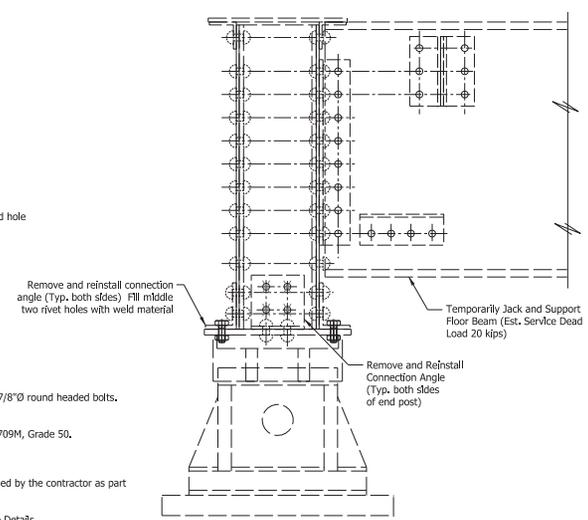
SECTION "D-D"
 Scale: 1"=1'-0"

LEGEND

- - Rivet removal
- - New field drilled hole

NOTES:

1. All removed rivets should be replaced with 7/8"Ø round headed bolts. All holes to be 15/16"Ø, unless noted.
2. All new structural steel to be ASTM A709/A709M, Grade 50.
3. Field verify all dimensions.
4. Adequate temporary bracing shall be provided by the contractor as part of the truss repairs, see special provisions.
5. See Sheet No. 18 for Proposed Gusset Plate Details.
6. Members removed but not replaced shall be properly marked and reinforced into the final connection.



SECTION A-A
 (TYPICAL AT EACH END OF FB0)
 Scale: 1 1/2"=1'-0"



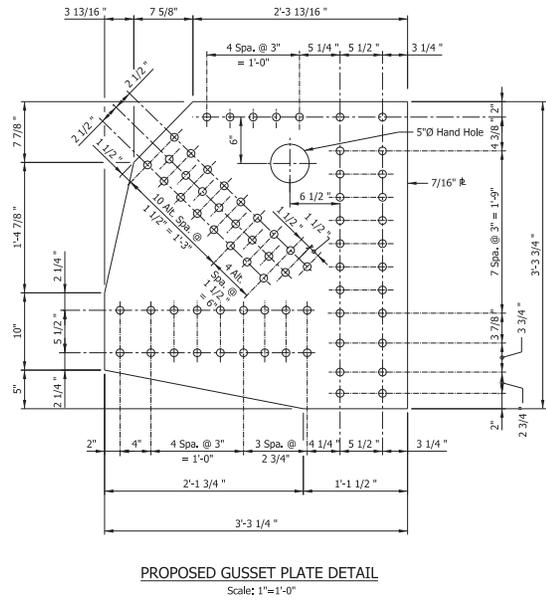
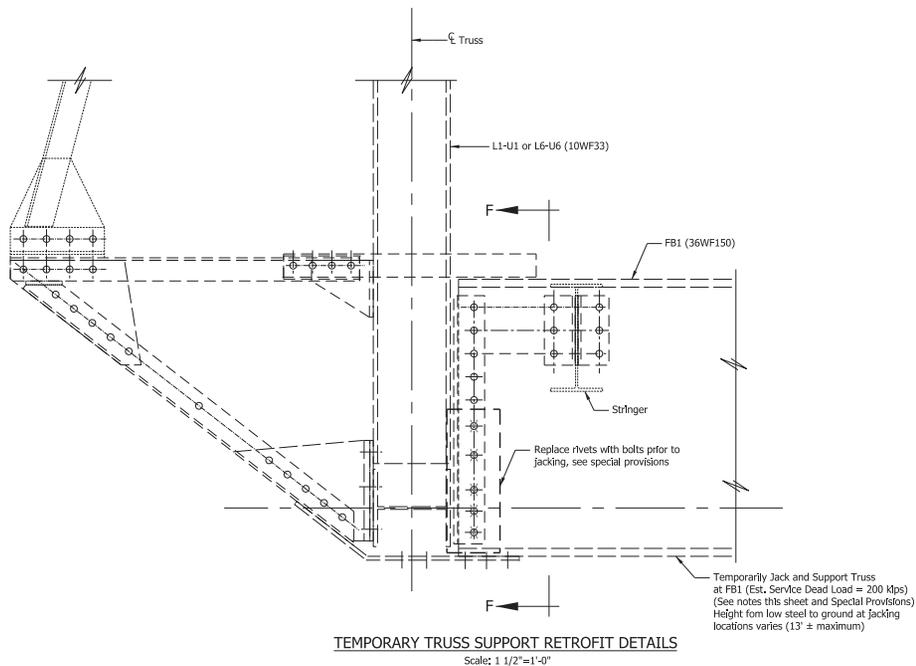
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: JAS	DRAWN: TMT	
CHECKED: JAMP	CHECKED: JAMP	

INDIANA
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GUSSET PLATE REPLACEMENT DETAILS

SCALE	BRIDGE FILE
AS NOTED	(42)399-1201792 C
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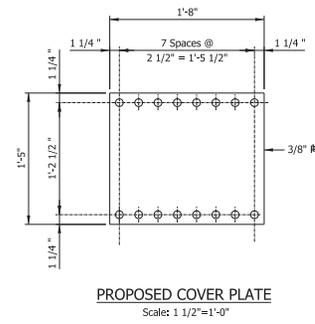
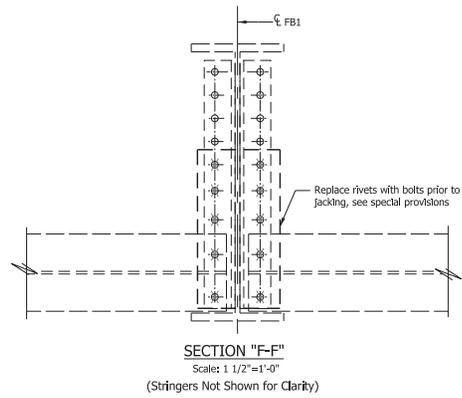
PROPOSED GUSSET PLATE DETAIL
Scale: 1"=1'-0"

LEGEND

- ⊗ - Rivet removal
- - New field drilled hole

NOTES

1. Estimated Dead Load is at each end of FB1 and assumes a sequence of work such that temporary support and gusset replacement occurs only on one side of the creek at a time, with the deck slab completely removed prior to jacking.
2. Alternate jacking and supporting locations and methods may be used if approved by the engineer. (See Special Provisions).
3. All removed rivets should be replaced with 7/8" round headed bolts. All holes to be 15/16"Ø.
4. All new structural steel to be ASTM A709/A709M, Grade 50.
5. Field verify all dimensions.
6. Adequate temporary bracing shall be provided by the contractor as part of the truss repairs, see special provisions.
7. Members removed but not replaced shall be properly marked and reincorporated into the final connection.



PROPOSED COVER PLATE
Scale: 1 1/2"=1'-0"

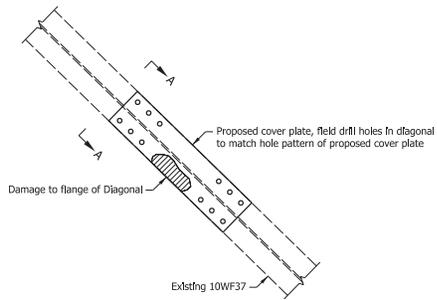


RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: JAS	DRAWN: TMT	
CHECKED: JAMP	CHECKED: JAMP	

INDIANA
DEPARTMENT OF TRANSPORTATION

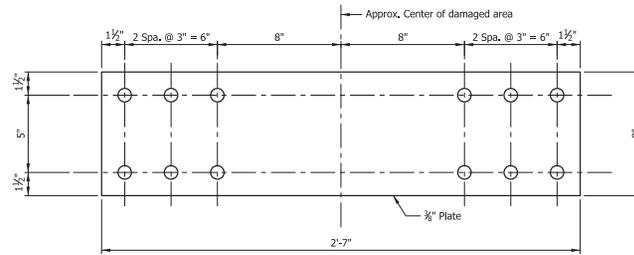
TEMPORARY SUPPORT DETAILS

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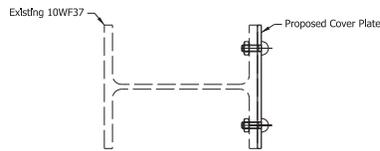
BOLTED COVER PLATE REPAIR (L7 U8-Y)

Scale: 1 1/2" = 1'-0"



PROPOSED COVER PLATE DETAIL

Scale: 3" = 1'-0"



SECTION A-A

Scale: 3" = 1'-0"

NOTES

1. All bolts shall be 3/8"Ø round headed bolts. All holes to be 1 1/4"Ø, unless noted.
2. All new structural steel to be ASTM A709/A709M, Grade 50.
3. Field verify all dimensions.
4. Repair or replacement of additional members only required if determined by engineer following a structural inspection during construction. See unique special provisions.

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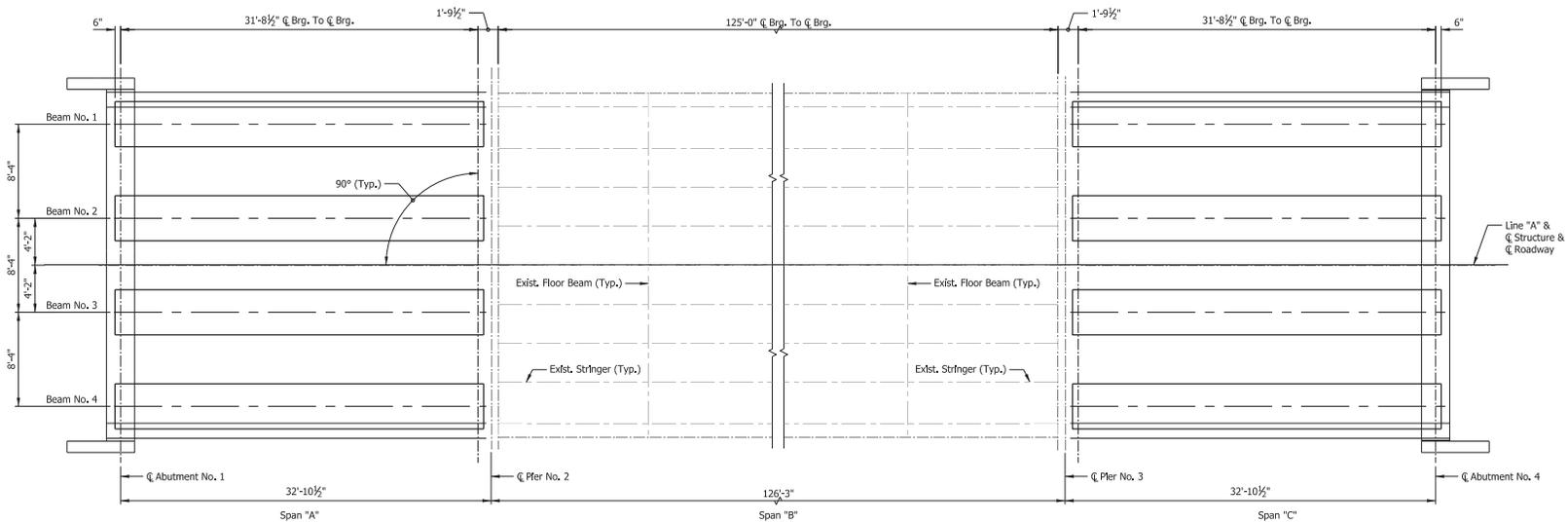


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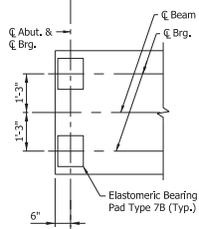
COVER PLATE DETAILS

SCALE	BRIDGE FILE
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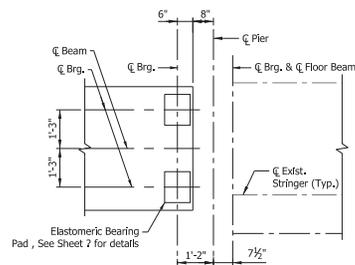


FRAMING PLAN

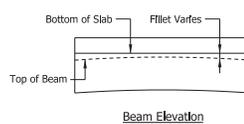
Scale: 3/8" = 1'-0"



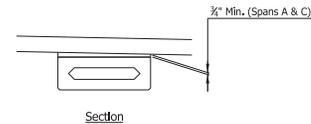
TYPICAL ELASTOMERIC BEARING PAD PLACEMENT AT ABUTMENTS NO. 1 & 4
Scale: 1/2" = 1'-0"



TYPICAL ELASTOMERIC BEARING PAD PLACEMENT AT PIERS NO. 2 & 3
Scale: 1/2" = 1'-0"



Beam Elevation



Section

BEAM FILLET DETAIL
No Scale

Residual Camber Table	
	Span "A" & "C"
Initial Beam Camber	3/8"
Superimposed Dead Load Deflection	-1/4"
Residual Camber	1/2"

Initial Beam Camber Equals Upward Deflection From Prestressing Force Minus Downward Deflection From Dead Load of the Beam in Inches.

BEAM DESIGN DATA

- Prestressing steel shall be 0.5" diameter uncoated, special low relaxation, seven-wire strand, 270 ksi, with strand area = 0.167 sq.in.
- Initial pull per prestressing strand to be 33.82 kips.
- Concrete strength at release, $f'c = 5,000$ psi.
- Concrete strength at 28 days, $f'c = 6,000$ psi.
- Mild reinforcing steel shall be Grade 60 ksi minimum yield strength.

GENERAL BEAM NOTES

- Beams shall be cast a minimum 30 days prior to pouring the deck.
- Beams are to be lifted and supported at the bearing points during handling, storage, and transportation. Adequate bracing must be provided at all times during storage, transportation and lifting to resist lateral loads.
- Allowance should be made in beam length for elastic shortening and grade.
- For Fabrication Tolerances of Prestressed Beams, see Standard Drawings E 707-BPBF-01 and -04.
- Beams shall be maintained vertically at all times. Suitable restraint shall be provided to prevent the rotation of the beams, particularly the outside beam, from construction load, such as the weight of the concrete deck, finishing machine, forms, etc.
- Top of beams shall be scored transversely at about 3" on center with pointed tool. Maximum depth of scoring should be 1/4".
- The ends of the beams at the End Bents shall be cast so that the end of the beam is vertical when placed in final grade condition.
- Acute angles of box beams shall be chamfered 3" (by Manufacturer).
- Sealer on the outside face of exterior beams to be done by the fabricator in the shop. Do not rub.

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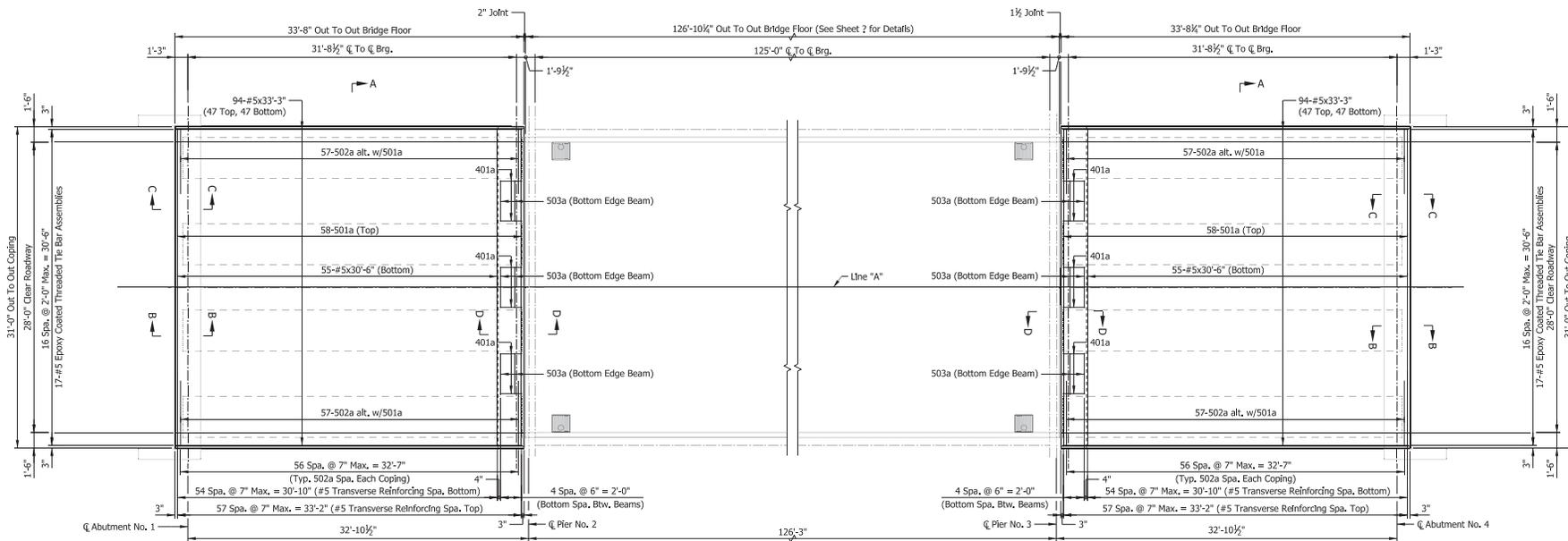


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FRAMING PLAN

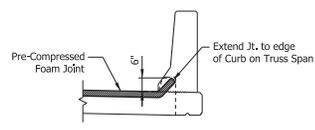
SCALE	BRIDGE FILE
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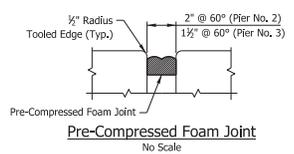
PLAN
Scale: 1/8" = 1'-0"

NOTES

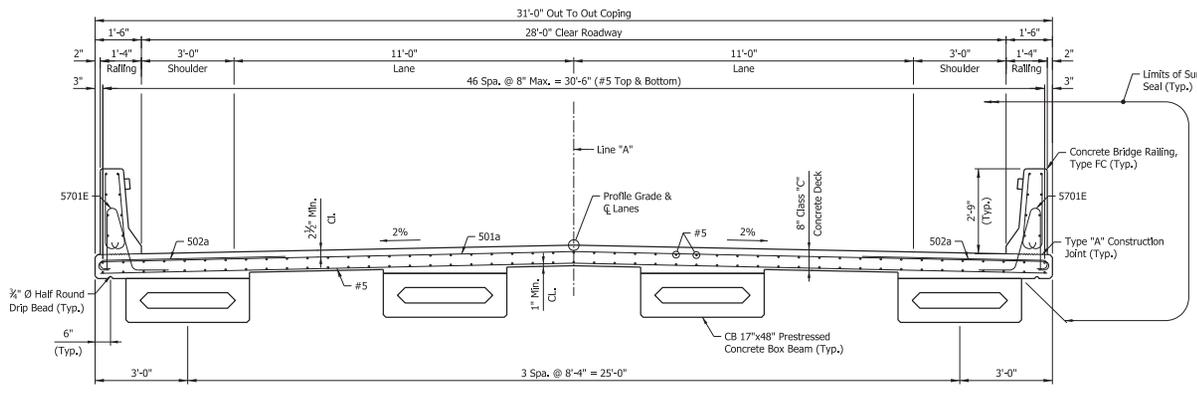
- All Reinforcing Steel to be Epoxy Coated.
- For Bar Bending Diagrams and Bill of Materials, see sheet 25.
- For Reinforcing Bar Notes and Standard End Hooks, see Standard Drawing E 703-BRST-01.
- The top reinforcing in the deck shall be securely tied down to the deck forms and/or beams to prevent lifting during concrete placement.
- Screed data will be furnished upon request.
- Suitable restraint shall be provided to prevent the rotation of the beams, particularly the outside beam, from construction loads, such as the weight of the concrete deck, finishing machine, forms, etc.
- For Sections B-B and C-C see Sheet No. 24.
- For Sections D-D see Sheet No. 25.
- For section thru railing and additional railing details, see Sheet No. 27.
- For Edge Beam reinforcement details, see Sheet No. 25.
- 5701E bar extending into the railing shall be placed and cast in deck, but binned with railings.
- See Unique special provisions for material and installation of Pre-Compressed Foam Joint.
- Expansion Length Pier No. 2:
Span 1 = 16'-0"
Span 2 = 125'-0"
- Expansion Length Pier No. 3:
Span 2 = 0'-0"
Span 3 = 16'-0"



JOINT DETAIL AT RAILING
No Scale



Pre-Compressed Foam Joint
No Scale



SECTION A-A
Scale: 1/2" = 1'-0"



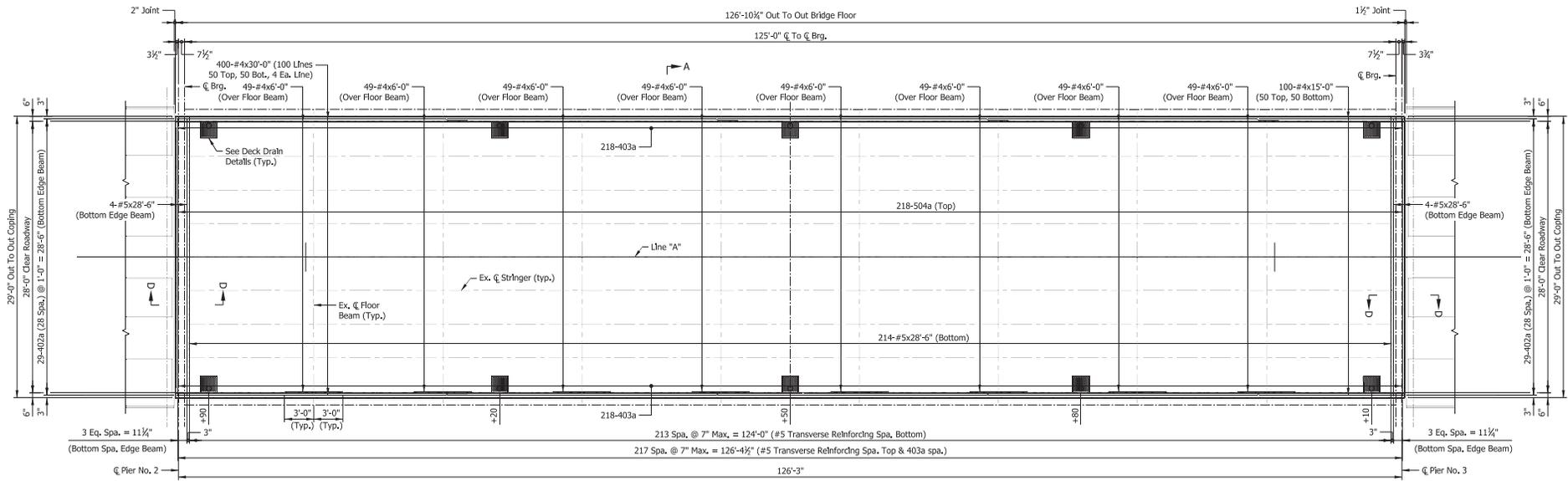
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INDIANA
DEPARTMENT OF TRANSPORTATION

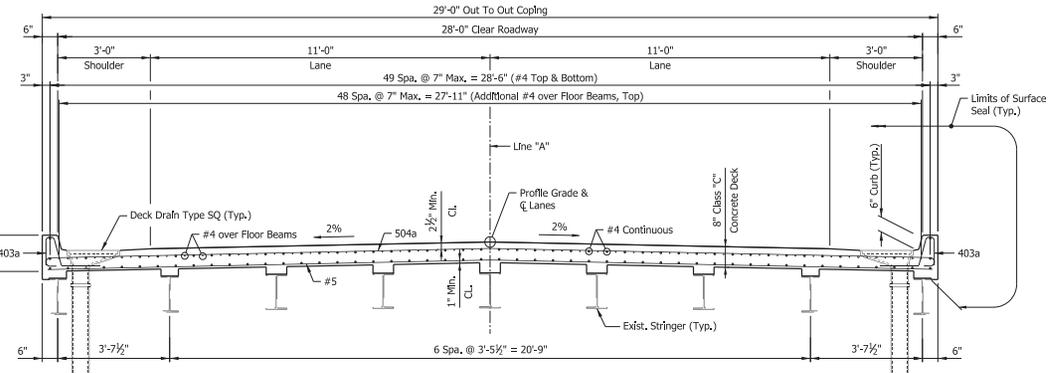
SUPERSTRUCTURE DETAILS

SCALE	BRIDGE FILE
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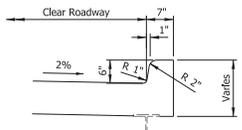
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PLAN
Scale: 1/8" = 1'-0"



SECTION A-A
Scale: 1/2" = 1'-0"



CURB DETAIL
No Scale

NOTES

1. All Reinforcing Steel to be Epoxy Coated.
2. For Bar Bending Diagrams and Bill of Materials, see sheet 25.
3. For Reinforcing Bar Notes and Standard End Hooks, see Standard Drawing E 703-BRST-01.
4. The top reinforcing in the deck shall be securely tied down to the deck forms and/or beams to prevent lifting during concrete placement.
5. Scream data will be furnished upon request.
6. Suitable restraint shall be provided to prevent the rotation of the beams, particularly the outside beam, from construction loads, such as the weight of the concrete deck, finishing machine, forms, etc.
7. For Sections D-D see Sheet No. 25.
8. For deck drainage and collection system details, see sheet 26.

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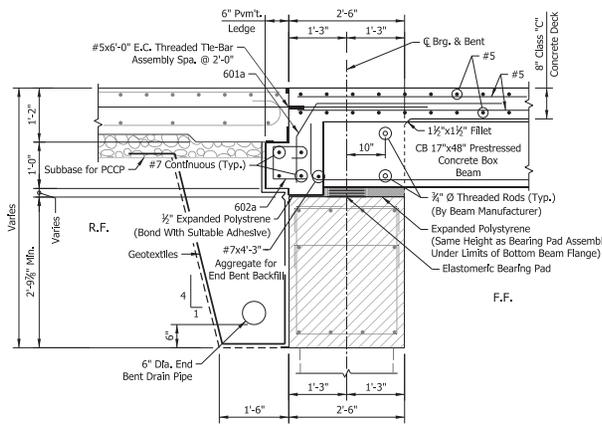


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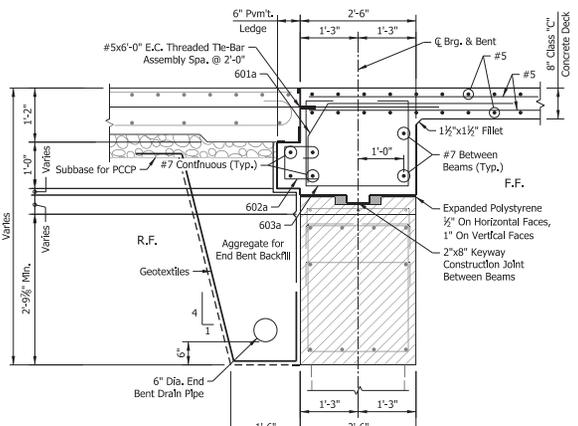
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SUPERSTRUCTURE DETAILS

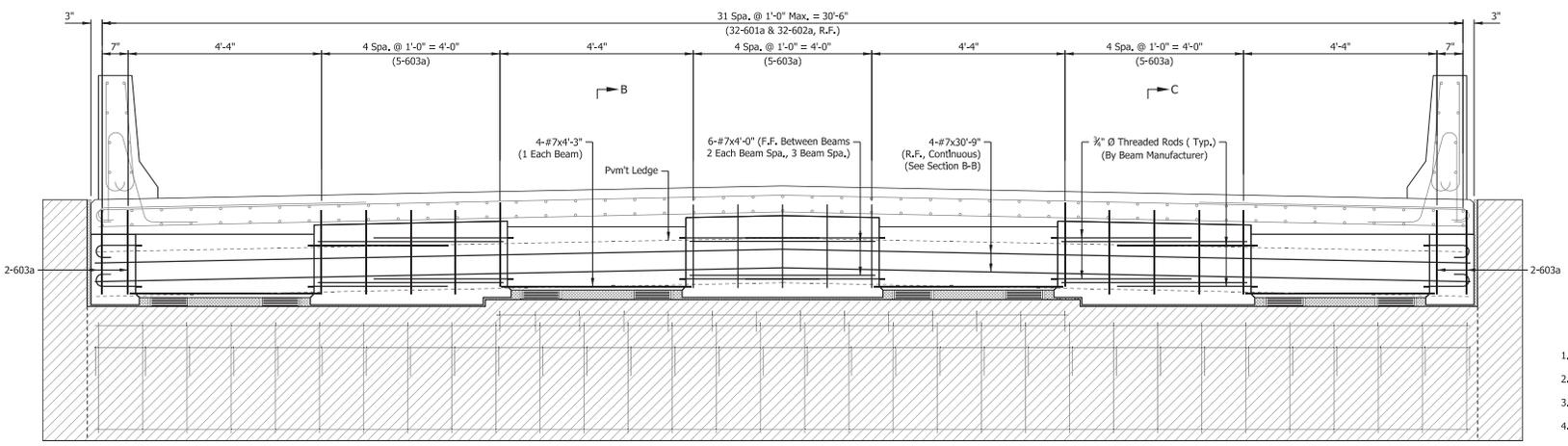
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SECTION B-B
Scale: 3/4" = 1'-0"



SECTION C-C
Scale: 3/4" = 1'-0"



TYPICAL BENT DIAPHRAGM
Scale: 3/4" = 1'-0"

- NOTES**
1. For Reinforcing Bar Notes, see Standard Drawing E703-BRST-01.
 2. All reinforcing steel to be epoxy coated.
 3. Screenshot data will be furnished upon request.
 4. Suitable restraint shall be provided to prevent the rotation of the beams, particularly the outside beam, from construction loads, such as the weight of the concrete deck, finishing machine, forms, etc.
 5. Hatched area to be poured with substructure.
 6. For additional details and BII Of Materials, see Sheet No. 25.
 7. For section thru railing and additional railing details, see Sheet No. 27.

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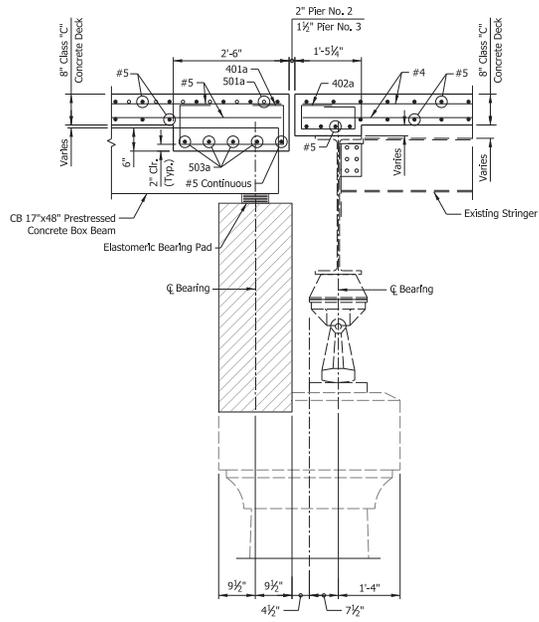


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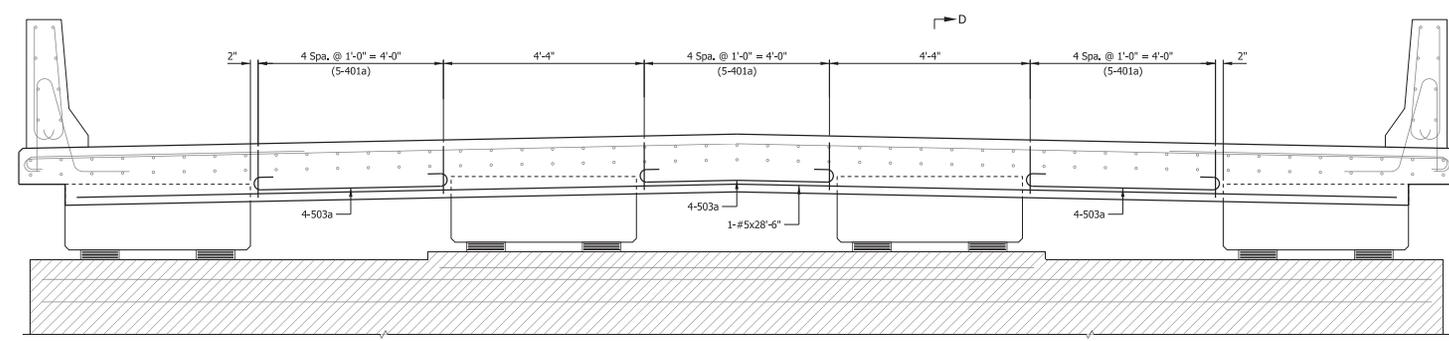
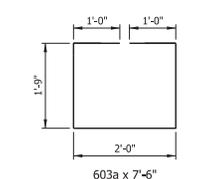
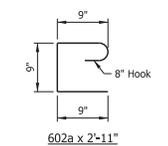
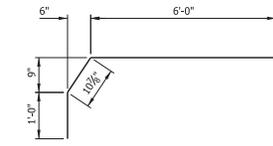
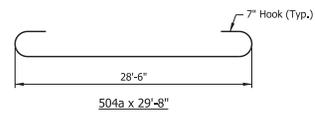
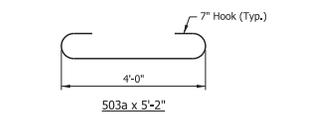
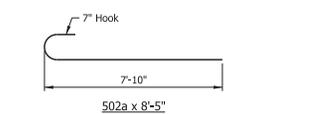
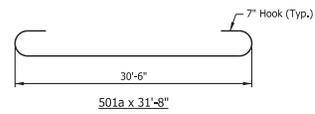
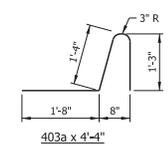
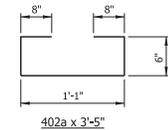
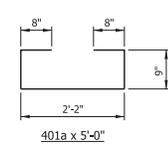
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SUPERSTRUCTURE DETAILS

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SECTION D-D
Scale: 3/8" = 1'-0"



TYPICAL CONCRETE EDGE BEAM
Scale: 3/8" = 1'-0"

BILL OF MATERIALS SUPERSTRUCTURE			
PLAIN REINFORCING STEEL			
Size & Mark	Number of Bars	Length (ft. - in.)	Weight (Lbs.)
#2	6	30'-3"	
#2	6	4'-3"	
#2	12	4'-0"	
TOTAL #1 BARS			639
EPOXY COATED REINFORCING STEEL			
001a	64	7'-11"	
501a	64	2'-11"	
502a	32	7'-6"	
TOTAL #4 BARS			1,468
REINFORCING STEEL			
501a	122	37'-6"	
502a	272	8'-5"	
503a	24	5'-2"	
504a	118	29'-6"	
#5	88	11'-7"	
#5	122	30'-5"	
#5	216	28'-5"	
TOTAL #5 BARS			25,385
CONCRETE			
CLASS "C" IN SUPERSTRUCTURE			175,415
MISCELLANEOUS			
SUBJECT SEAL			6390 SFT
PRE-COMPRESSED FOAM BULK			32 LIT
ASTM 1065 W/48 DRAIN TYPE SQ WITH GRATE A 1/2 LBS. EACH			18 EACH
E.C. THREADED TIE-BAR ASSEMBLIES			34 EACH

- NOTES**
- For Reinforcing Bar Notes, see Standard Drawing E703-BRST-01.
 - All reinforcing steel to be epoxy coated.
 - Screed data will be furnished upon request.
 - Suitable restraint shall be provided to prevent the rotation of the beams, particularly the outside beam, from construction loads, such as the weight of the concrete deck, finishing machine, forms, etc.
 - Hatched area to be poured with substructure.
 - For section thru railing and additional railing details, see Sheet No. 27.

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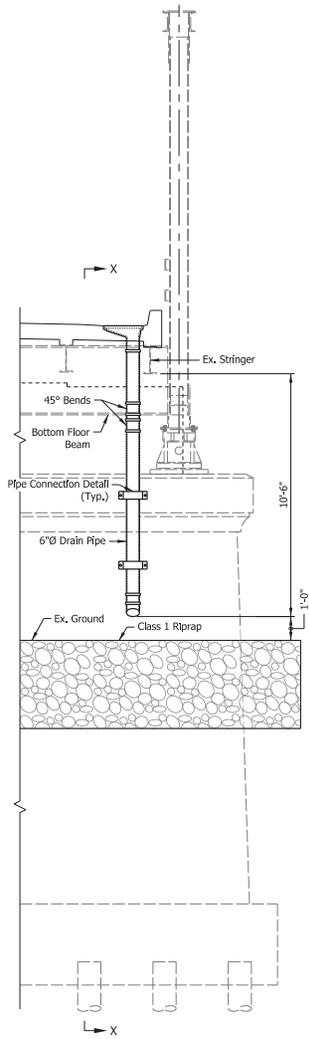
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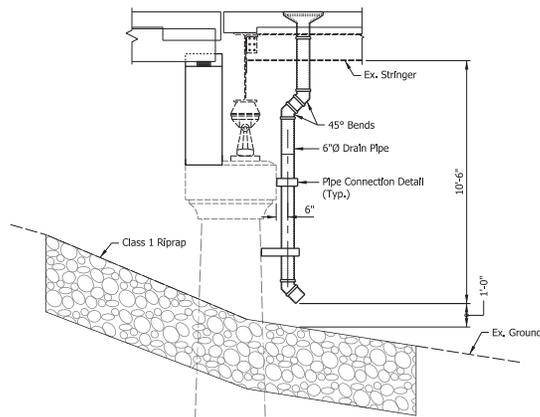
SUPERSTRUCTURE DETAILS

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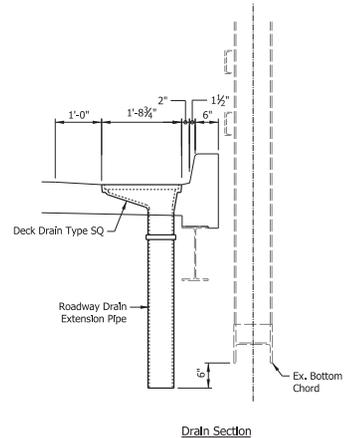
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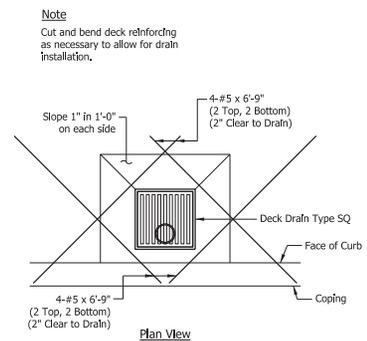
ELEVATION - PIER NO. 2 & 3
Scale: 3/8" = 1'-0"



SECTION X-X
Scale: 3/8" = 1'-0"

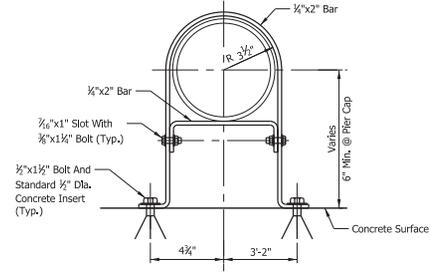


Drain Section



Plan View

DECK DRAIN DETAILS
Scale: 3/8" = 1'-0"



PIPE CONNECTION DETAIL
No Scale



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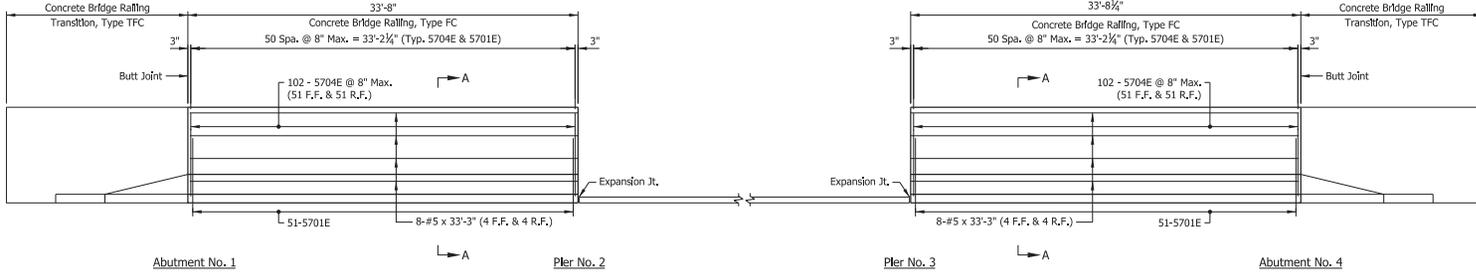
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DRAINAGE DETAILS

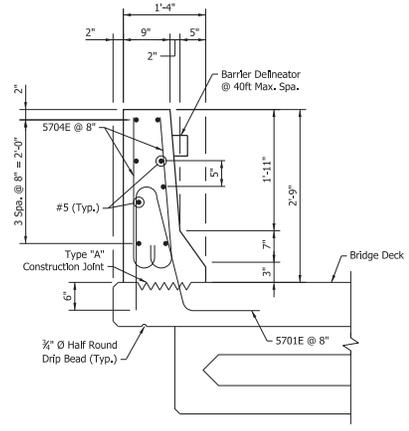
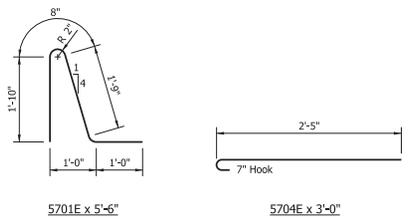
SCALE	BRIDGE FILE
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BILL OF MATERIALS			
CONCRETE BRIDGE RAILING			
EPOXY COATED REINFORCING STEEL			
Size & Mark	Number of Bars	Length (ft. - in.)	Weight (lbs.)
5701E	102	5'-6"	
5704E	306	2'-0"	
25	18	11'-0"	
TOTAL # BARS			1,726
CONCRETE BRIDGE RAILING TRANSITIONAL TYPE TTC (2 @ 55)			1900
TOTAL EPOXY COATED REINFORCING			1,890
CONCRETE			
RAILING CONCRETE FC			91,127
CONCRETE BRIDGE RAILING TRANSITIONAL TYPE TTC			2 EACH
MISCELLANEOUS			
SURFACE SEAL			300 SFT
BARRELS/DELMATORS			8 EACH

3 REQUIRED



CONCRETE RAILING ELEVATION
South Coping Shown, North Coping Same
No Scale



SECTION A-A
Scale: 1" = 1'-0"

NOTES

1. For Bridge Railing, Type FC details, see Std. Dwg. E 706-BRSF-02.
2. For TFC Transition details, see Std. Dwg. E 706-TTFC-01 through E 706-TTFC-03.
3. All reinforcing bars shall be Epoxy Coated.

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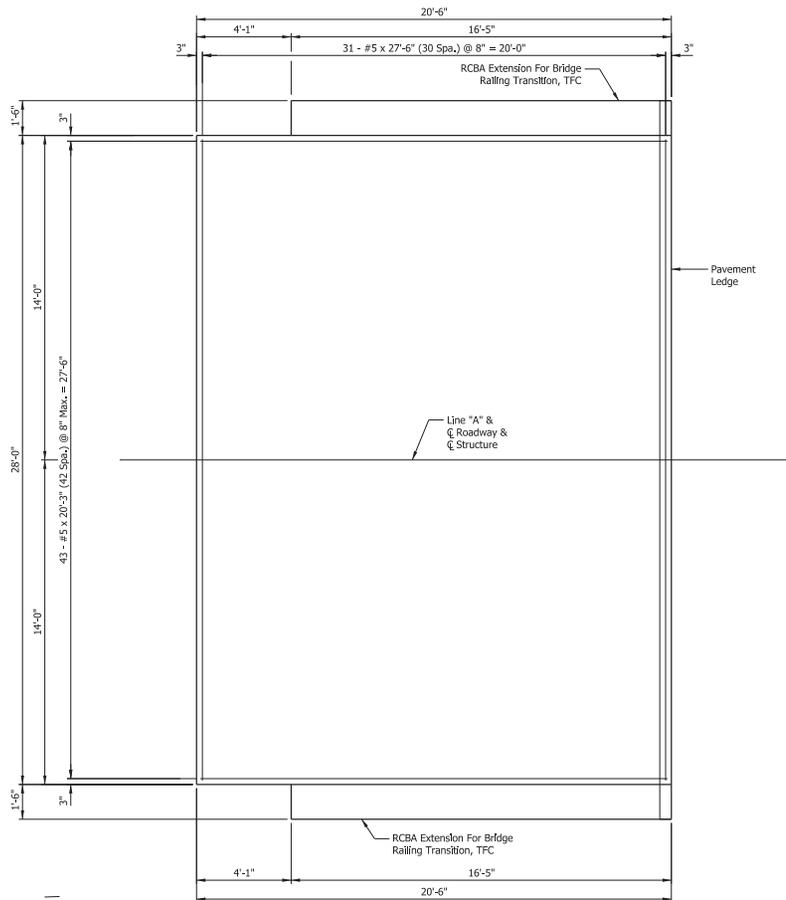
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DEPARTMENT OF TRANSPORTATION

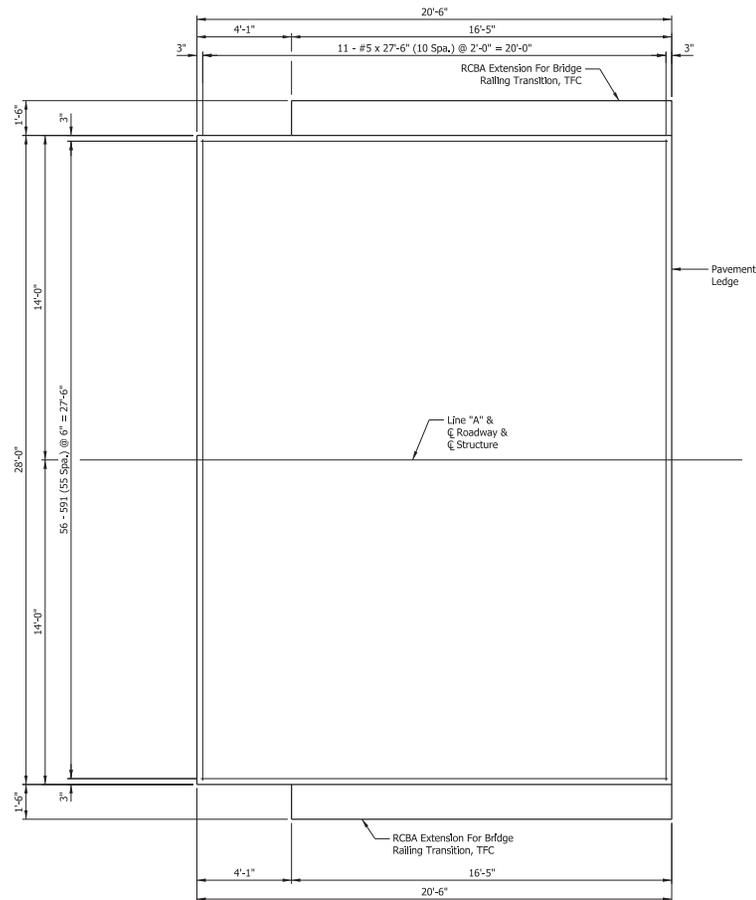
RAILING DETAILS

SCALE	BRIDGE FILE
AS NOTED	(42)39-1201792 C
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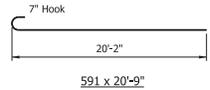


PLAN @ ABUTMENT NO. 1
Showing Top Reinforcement
Plan @ Abutment No. 4 Same by 180° Rotation
Scale: 3/8" = 1'-0"



PLAN @ ABUTMENT NO. 1
Showing Bottom Reinforcement
Plan @ Abutment No. 4 Same by 180° Rotation
Scale: 3/8" = 1'-0"

BILL OF MATERIALS			
R.C. BR. APPR. BENT NO. 1			
EPOXY COATED REINFORCING STEEL			
Size & Mark	Number of Bars	Length (ft. - in.)	Weight (LBS.)
#5	36	20'-2"	
#5	42	27'-0"	
#5	40	20'-2"	
TOTAL #5 BARS (S&B)			1,264
CONCRETE BRIDGE APPROACH EXTENSION (2 @ 200)			
			538
CONCRETE BRIDGE RAILING TRANSITIONAL TYPE TFC (2 @ 350)			
			1100
TOTAL EPOXY COATED REIN.			4,911
CONCRETE			
R.C. BRIDGE APPROACH 12 IN.			883 SFT
CONC. BR. RAILING TRANS. TYPE TFC			2 EACH
MISCELLANEOUS			
SURFACE SEAL			506 SFT
SURFACE FOR TFC			11 CHS
GEOTECHNICAL FOR SURGRADE TYPE 30			883 SFT
R.C. BR. APPR. BENT NO. 4 SAME			



- NOTES:**
1. For reinforcing bar notes, see Standard Drawing E 703-BRST-01.
 2. For TFC Transition details, see Standard Drawing E 706-TTFC-01 through E 706-TTFC-03.
 3. For RCBA Extension for Bridge Railing Transition, Type TFC. See Standard Drawing E 609-TBAE-01.
 4. For Construction Joint Type I-A see Standard Drawing E 609-BRJT-01.
 5. All reinforcing bars shall be Epoxy-Coated.
 6. RCBA's and TFC Transitions shall be surface sealed.
 7. For section through approach and additional details, see Standard Drawings E 609-RCBA-01 thru E 609-RCBA-03.



RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: TMT	DRAWN: TMT	
CHECKED: KMP	CHECKED: JAS	

INDIANA
DEPARTMENT OF TRANSPORTATION

APPROACH SLAB DETAILS

SCALE	BRIDGE FILE
AS NOTED	(431)39-1241.792 C
	DESIGNATION
	1593276
	SHEETS
	28 of 30
CONTRACT	PROJECT
B-42017	1593276